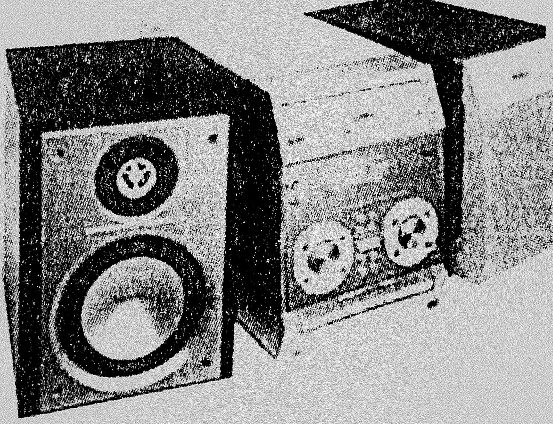
Micro System

MC-90/22/37

Service
Service
Service



1. For repair information on the Mozart CDR Module, refer to 2nd Line Service Manual "***CDR Mozart Module - 3122 785 60030***". V23646
2. For additional repair information on the 3DTC Module (CDR version), see also separate Training Manual "***3DTC - 3103 785 25140***". V2.13.13

Service Manua

COMPACT
disc
DIGITAL AUDIO

TABLE OF CONTENTS

Page

Location of pc boards & Version variations 1-2
Technical Specifications 1-3
Measurement setup 1-4
Service Aids, Safety Instruction, etc. 1-5
Disassembly Instructions & Service positions 2
Service Test Programs 3
Set Block diagram 4
Set Wiring diagram 5
Front Display Board 6
ECO6 Tuner Board: System Non-Cenelec 7A
System Cenelec 7B
Front Control Board 8
Digital In Board 9
3DTC Module (CDR version) 10
Mains Board 11
Combi & Regulator Boards 12
Set Mechanical Exploded view & parts list 13

CLASS 1
LASER PRODUCT

© Copyright 2001 Philips Consumer Electronics B.V. Eindhoven, The Netherlands
All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, or otherwise without the prior permission of Philips.

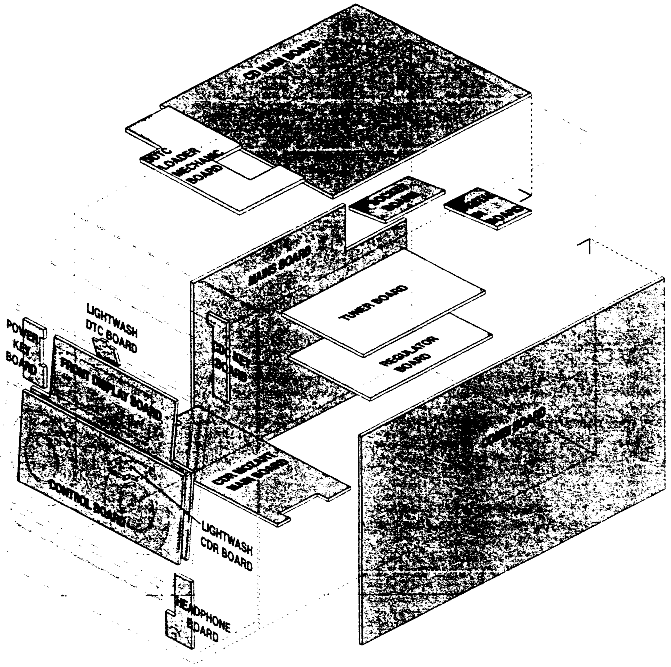
GB 3139 785 3004

Published by BB 0149 Service Audio Printed in The Netherlands Subject to modification

Version 1.0

PHILIPS

LOCATION OF PRINTED CIRCUIT BOARDS


CD MAIN BOARD
DTC LOADER MECHANIC BOARD
MAINS BOARD
TUNER BOARD
REGULATOR BOARD
CD KEY BOARD
LIGHTWASH DTC BOARD
POWER KEY BOARD
FRONT DISPLAY BOARD
CONTROL BOARD
CDR MOZART MAIN BOARD
LIGHTWASH CDR BOARD
HEADPHONE BOARD
COMBI BOARD

VERSION VARIATIONS:

Type /Versions:	MC-90									
Features & Board in used:	/22	/37								
Aux in /CDR in	x	x								
Line Out	x	x								
Surround Out										
Subwoofer Out	x	x								
Digital Out										
Digital in	x	x								
Matrix Surround										
CD Text	x	x								
Dolby B										
RDS	x									
News	x									
Dolby Pro Logic (DPL)										
Incredible Surround	x	x								
Karaoke Features										
Voltage Selector										
ECO Power Standby (Clock Display Off)	x									
ECO6 Tuner Board - Systems Non-Cenelec		x								
ECO6 Tuner Board - Systems Cenelec	x									
Center/Surround Channel										

SPECIFICATIONS

GENERAL:

Mains voltage	: 220-230V for /22 120V for /37
Mains frequency	: 50/60Hz
Power consumption	: < 1W at Eco Power Standby /22 15W at Standby (Demo off) 88W at Active
Clock accuracy	: < 4 seconds per day
Dimension centre unit	: 175 x 244 x 349mm

TUNER:

FM

Tuning range	: 87.5-108MHz
Grid	: 50kHz 100kHz for /37
IF frequency	: 10.7MHz ± 25kHz
Aerial input	: 75Ω coaxial 300Ω click fit for /37
Sensitivity at 26dB S/N	: < 7µV
Selectivity at 600kHz bandwidth	: > 25dB
Image rejection	: > 25dB
Distortion at RF=1mV, dev. 75kHz	: < 3%
-3dB Limiting point	: < 8µV
Crosstalk at RF=1mV, dev. 40kHz	: > 18dB

MW

Tuning range	: 531-1602kHz 530-1700kHz for /37
Grid	: 9kHz 10kHz for /37
IF frequency	: 450kHz ± 1kHz
Aerial input	: Frame aerial
Sensitivity at 26dB S/N	: < 4.0mV/M
Selectivity at 18kHz bandwidth	: > 18dB
IF rejection	: > 45dB
Image rejection	: > 28dB
Distortion at RF=50mV, m=80%	: < 5%

LW

Tuning range	: 153-279kHz for /22
Grid	: 3kHz
IF frequency	: 450kHz ± 1kHz
Aerial input	: Frame aerial
Sensitivity at 26dB S/N	: [< 6.0mV/M]
Selectivity at 18kHz bandwidth	: [> 24dB]
IF rejection	: [> 45dB]
Image rejection	: [> 30dB]
Distortion at RF=50mV, m=80%	: [< 5%]

AMPLIFIER:

Output power	: 2 x 25W RMS 1) /22 2 x 20W FTC 2) /37
Frequency response within -3dB	: 50Hz-16kHz
Treble	: 12.5kHz ± 3 Steps 3)
Bass	: 55Hz ± 3 Steps 3)
Incredible Surround	: ON/OFF 3)

Input sensitivity

Aux / CDR in	: 500mV / 1V ± 3dB at 600Ω
Digital in	: 0.5Vp-p

Output sensitivity

Line out (Left/Right)	: 500mV ± 2dB at 22kΩ
Subwoofer out	: 1.3V ± 3dB at 22kΩ
Headphone output at 32Ω	: 680mV ± 1.5dB

[....] Values indicated are for "Cenelec version" only.

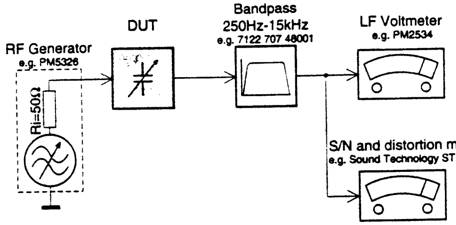
1) 6Ω, 1kHz, 10% THD

2) 6Ω, 60Hz-12.5kHz, 10% THD

3) Frequency response in each setting is software controlled.

MEASUREMENT SETUP

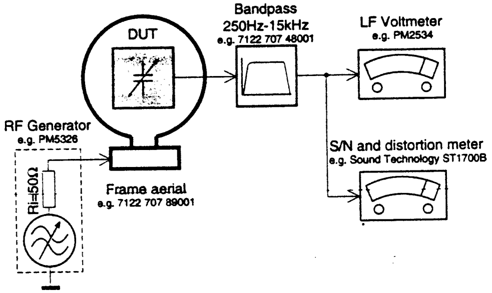
Tuner FM



DUT
Bandpass
250Hz-15kHz
e.g. 7122 707 48001
LF Voltmeter
e.g. PM2534
RF Generator
e.g. PM5326
Ri=50Ω
S/N and distortion meter
e.g. Sound Technology ST1700B

Use a bandpass filter to eliminate hum (50Hz, 100Hz) and disturbance from the pilottone (19kHz, 38kHz).

Tuner AM (MW,LW)

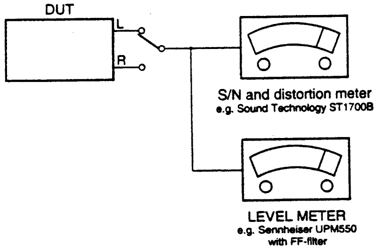


Bandpass
250Hz-15kHz
e.g. 7122 707 48001
LF Voltmeter
e.g. PM2534
DUT
RF Generator
e.g. PM5326
Ri=50Ω
Frame aerial
e.g. 7122 707 89001
S/N and distortion meter
e.g. Sound Technology ST1700B

To avoid atmospheric interference all AM-measurements have to be carried out in a Faraday´s cage.
Use a bandpass filter (or at least a high pass filter with 250Hz) to eliminate hum (50Hz, 100Hz).

CD

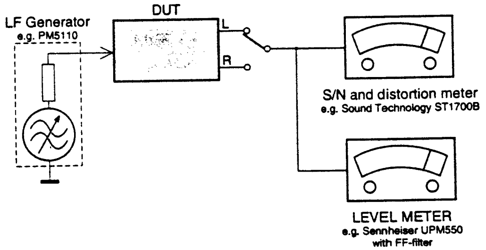
Use Audio Signal Disc SBC429 4822 397 30184
(replaces test disc 3)



DUT
L
R
S/N and distortion meter
e.g. Sound Technology ST1700B
LEVEL METER
e.g. Sennheiser UPM550
with FF-filter

Recorder

Use Universal Test Cassette **CrO2** SBC419 4822 397 30069
or Universal Test Cassette **Fe** SBC420 4822 397 30071



LF Generator
e.g. PM5110
DUT
L
R
S/N and distortion meter
e.g. Sound Technology ST1700B
LEVEL METER
e.g. Sennheiser UPM550
with FF-filter

SERVICE AIDS

Service Tools:

Universal Torx driver holder	4822 395 91019
Torx bit T10 150mm	4822 395 50456
Torx driver set T6 - T20	4822 395 50145
Torx driver T10 extended	4822 395 50423

Cassette:

SBC419 Test cassette CrO2	4822 397 30069
SBC420 Test cassette Fe	4822 397 30071
MTT150 Dolby level 200nWb/M	4822 397 30271

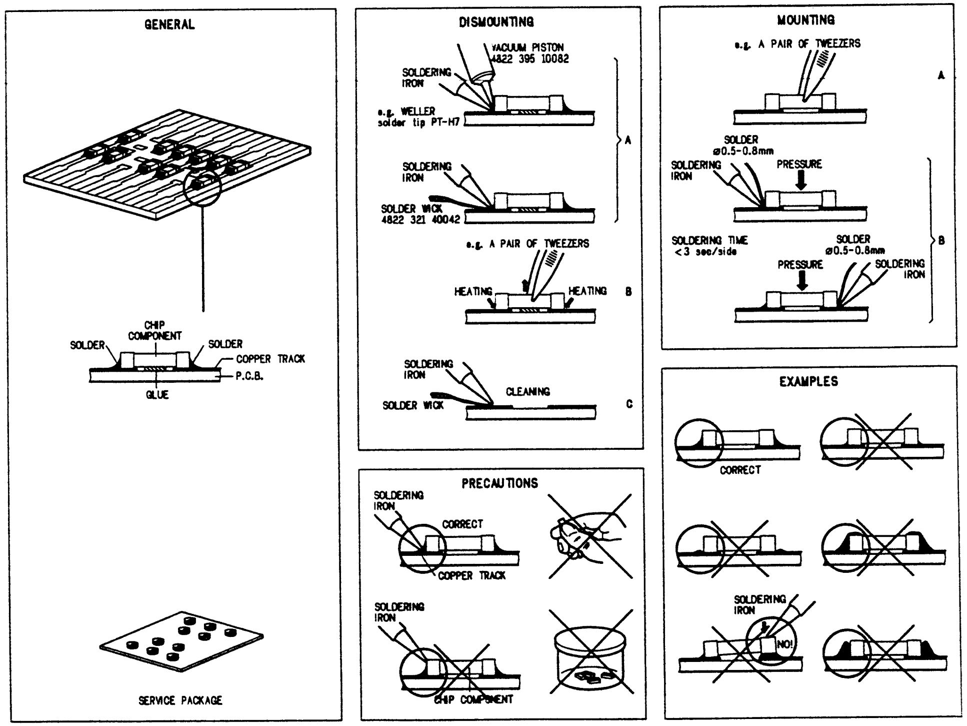
Compact Disc:

SBC426/426A Test disc 5 + 5A	4822 397 30096
SBC442 Audio Burn-in Test disc 1kHz	4822 397 30155
SBC429 Audio Signals disc	4822 397 30184
Dolby Pro-logic Test Disc	4822 395 10216

ESD Equipment:

Anti-static table mat - large 1200x650x1.25mm	4822 466 10953
Anti-static table mat - small 600x650x1.25mm	4822 466 10958
Anti-static wristband	4822 395 10223
Connector box (1MΩ)	4822 320 11307
Extension cable (to connect wristband to conn. box)	4822 320 11305
Connecting cable (to connect table mat to conn. box)	4822 320 11306
Earth cable (to connect product to mat or box)	4822 320 11308
Complete kit ESD3 (combining all above products)	4822 320 10671
Wristband tester	4822 344 13999

HANDLING CHIP COMPONENTS



GENERAL
CHIP COMPONENT
SOLDER
SOLDER
COPPER TRACK
P.C.B.
GLUE
SERVICE PACKAGE
DISMOUNTING
SOLDERING IRON
VACUUM PISTON 4822 395 10082
e.g. WELLER solder tip PT-H7
A
SOLDERING IRON
SOLDER WICK 4822 321 40042
e.g. A PAIR OF TWEEZERS
HEATING
HEATING
B
SOLDERING IRON
CLEANING
SOLDER WICK
C
MOUNTING
e.g. A PAIR OF TWEEZERS
A
SOLDER ø0.5-0.8mm
SOLDERING IRON
PRESSURE
SOLDERING TIME <3 sec/side
SOLDER ø0.5-0.8mm
PRESSURE
SOLDERING IRON
B
PRECAUTIONS
SOLDERING IRON
CORRECT
COPPER TRACK
SOLDERING IRON
CHIP COMPONENT
EXAMPLES
CORRECT
SOLDERING IRON
NO!

(GB) WARNING

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD).
Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.
Keep components and tools also at this potential.

(F) ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).
Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation.
Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité.
Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

ESD

(D) WARNUNG

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD).
Unsorgfältige Behandlung im Reparaturfall kan die Lebensdauer drastisch reduzieren.
Veranlassen Sie, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand verbunden sind mit dem gleichen Potential wie die Masse des Gerätes.
Bauteile und Hilfsmittel auch auf dieses gleiche Potential halten.

(NL) WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen.
Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.
Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

(I) AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione.
Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

(GB)

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified, be used.

(NL)

Veiligheidsbepalingen vereisen, dat het apparaat bij reparatie in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.

(F)

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utiliséés les piéces de rechange identiques à celles spécifiées.

(D)

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Original zustand des Geräts darf nicht verändert werden; für Reparaturen sind Original-Ersatzteile zu verwenden.

(I)

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambio identici a quelli specificati.

"After servicing and before returning set to customer perform a leakage current measurement test from all exposed metal parts to earth ground to assure no shock hazard exist. The leakage current must not exceed 0.5mA."

"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agréés, seuls habilités à réparer votre appareil en panne".

CLASS 1
LASER PRODUCT

(GB) Warning !

Invisible laser radiation when open.
Avoid direct exposure to beam.

(S) Varning !

Osynlig laserstrålning när apparaten är öppnad och spärren är urkopplad. Betrakta ej strålen.

(SF) Varoitus !

Avatussa laitteessa ja suojalukituksen ohitettaessa olet alttiina näkymättömälle laserisäteilylle. Älä katso säteeseen!

(DK) Advarse !

Usynlig laserstråling ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsaettelse for stråling.

DISMANTLING INSTRUCTIONS

Dismantling of the 3DTC Module

1) Loosen 4 screws and remove the Cover Top (pos 255) by sliding it out towards the rear before lifting up.
   - 2 screws on the rear
   - 1 screw each on the left & right side

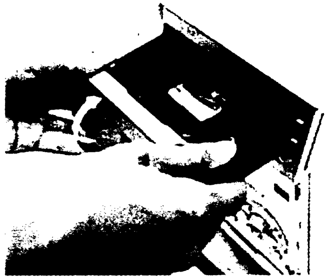


Figure 2

2) Loosen 2 screws each to remove the Panel Left (pos 253) and Panel Right (pos 254). The Panels are remove by sliding it towards the rear and outwards.
   - 1 screw on the side
   - 1 screw on the rear
3) Open the 3DTC Tray by sliding the Lever as shown in figure 1 with the help of a flat head screw driver.
4) With the 3DTC Tray opened, remove the Cover Tray DTC (pos 106) as shown in figure 2.
5) Loosen 4 screws A (see figure 1) to remove the 3DTC Module (pos 1109).
   - 2 screws on the front
   - 1 screw each on the left & right side

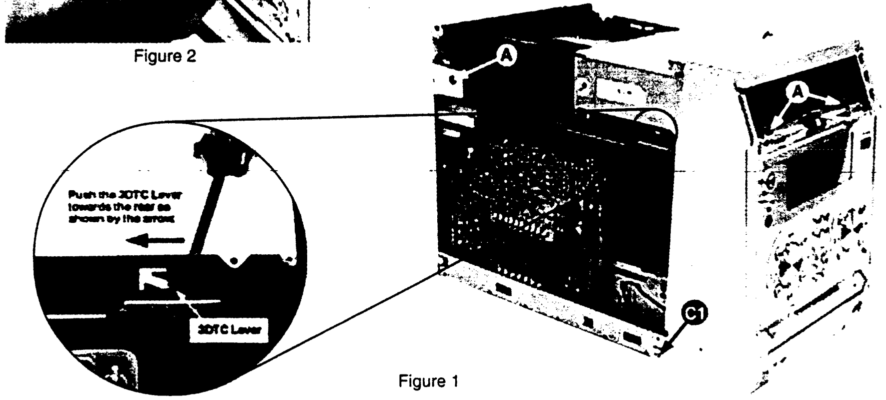


Figure 1

Opening the CDR Tray manually & Dismantling of the Cover Tray CDR

1) Take a paper clip or any stiff wire diameter of 1mm-1.5mm and make a marking about 40mm from the tip as shown in figure 3.
2) Place the set in the position as shown in figure 4 and insert the paper clip or stiff wire into the hole on the Left side of the Cabinet Front (pos 101).
3) With the marking just outside the hole on the Cabinet Front (pos 101) as shown in figure 5, you have to feel and give a push to unlock the CDR Tray before sliding it out.

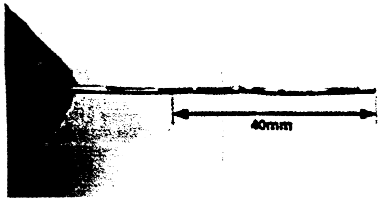


Figure 3

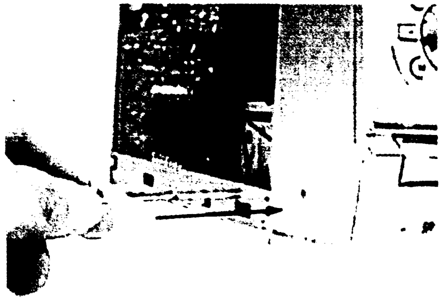


Figure 4

Opening the CDR Tray manually & Dismantling of the Cover Tray CDR

4) With the CDR Tray opened, remove the Cover Tray CDR (pos 158) as shown in figure 6.

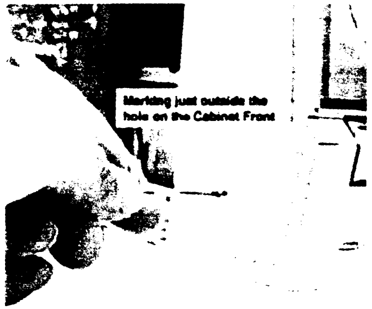


Figure 5

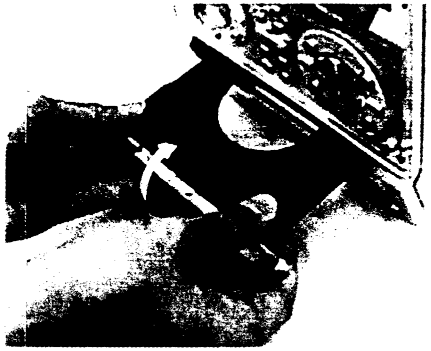


Figure 6

Detaching the Front Panel assembly from the Bottom/Rear assembly

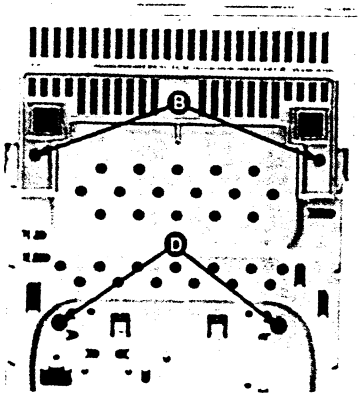


Figure 7

1) Remove 2 screws B (pos 226) as shown in figure 7 from the bottom of the Cabinet Front (pos 101).
2) Remove 2 Rivet Plastic D (pos 263) as shown in figure 7 from the bottom of the Plate Bottom (pos 265).
3) Release the fixation of the Combi Board (pos 1101-1001) to Bracket Combi (pos 252) by releasing 2 catches C2 and pulling the board outwards as shown in figure 8.
4) Uncatch 2 catches C1 (see figure 1) on the left & right sides of the Cabinet Front (pos 101) and slides the Front Panel assembly out towards the front.

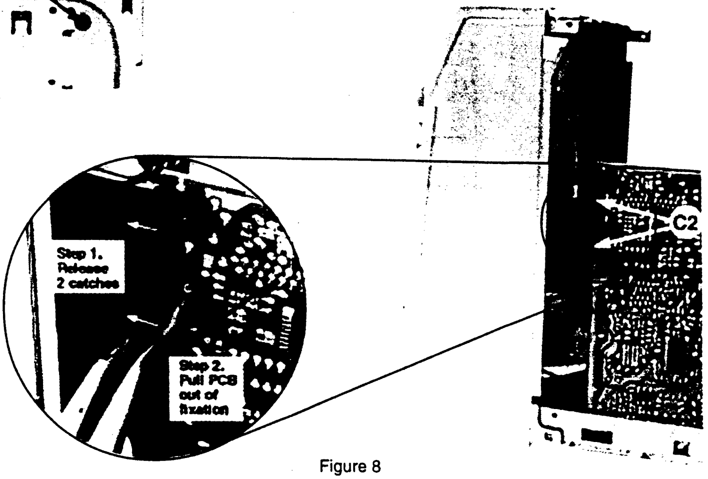


Figure 8

Dismantling of the Front Panel assembly

1) The Knob Jog (pos 141) can be remove by inserting a strong string into the slot, looped it until it engage into both the U-slot of the knob Jog and pulled it out in the direction as shown in figure 9.
2) Loosen 4 screws F to remove the Ring Orn. Left (pos 139) and Ring Orn. Right (pos 140) as shown in figure 10.
3) Loosen 2 screws E to remove the CDR Module (pos 1105) as shown in figure 11.
4) Loosen 2 screws G to remove the Bracket Combi (pos 252) as shown in figure 11.
5) Loosen 2 screws H (see figure 11) and 2 catches C3 (see figure 12) to remove the Lightguide CDR (pos 142).
6) Loosen 2 nuts F1 (see figure 10) to remove the Front Display Board (pos 1108).

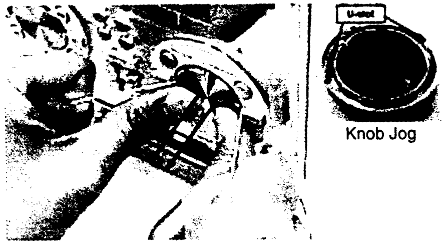


Figure 9

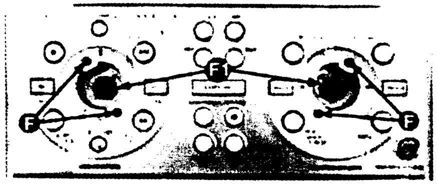
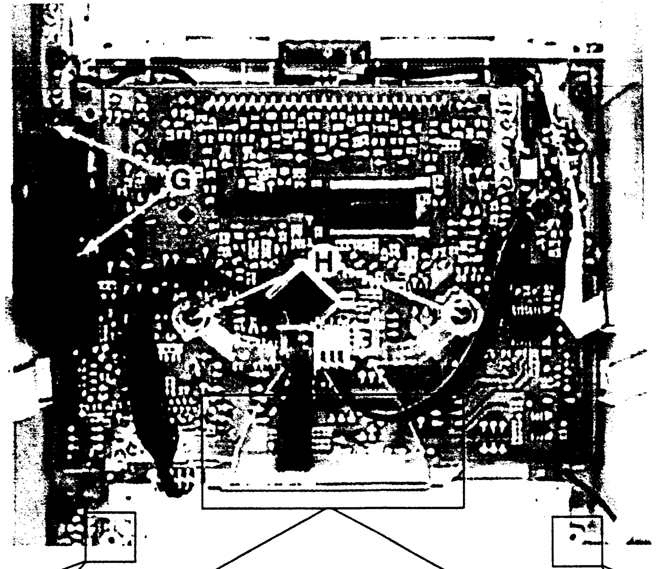


Figure 10

Figure 11



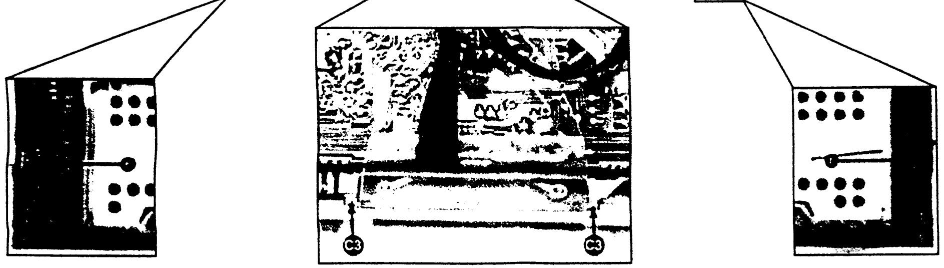


Figure 12

Dismantling of the Rear Panel

1) Loosen 3 screws J and 2 catches C5 to remove the Tuner Board assembly as shown in figure 13.
2) Loosen 1 screw M as shown in figure 13 to remove the Digital In Board (pos 1111).
   Note : Tuner Board assembly and Digital In Board can also be remove together with the Panel Rear.
3) Loosen 1 screw L and the 2 catches C4 to free the Mains Socket Board from the Panel Rear (pos 256).
4) Loosen 5 screws K and 2 catches C6 to remove the Panel Rear (pos 256) by sliding it out towards the rear.

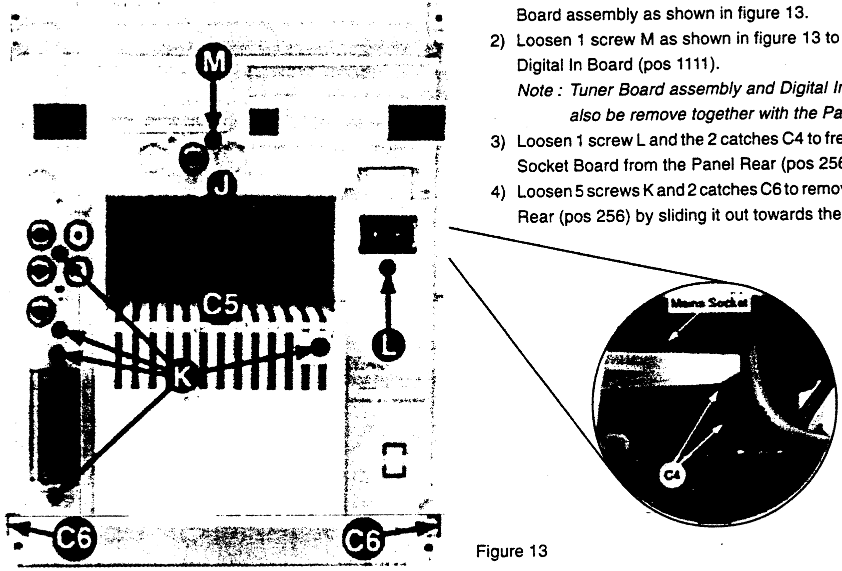


Figure 13

Dismantling of the Bottom assembly

1) Loosen 2 screws N as shown in figure 14 to remove the Combi & Regulator boards assembly (pos 1101-1001 & pos 1101-1003).
2) Loosen 2 screws P as shown in figure 15 to remove the Housing Fan Top (pos 267).
   Note : During Fan replacement care should be taken to ensure that the following are correct:
   - *fan blade direction*
   - *fan wire position*
   - *fan is properly supported by the rubber damper*

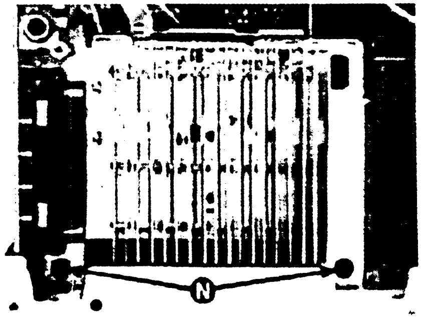


Figure 14

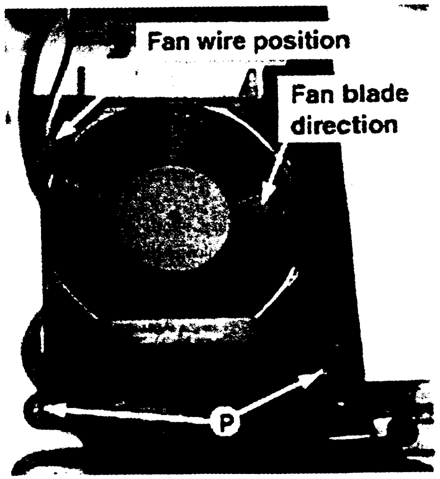


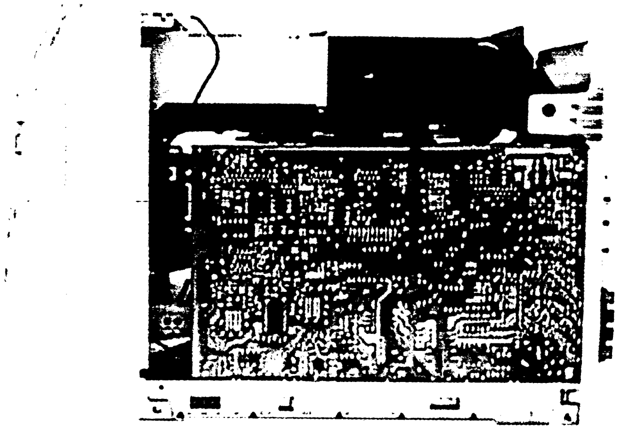
Figure 15

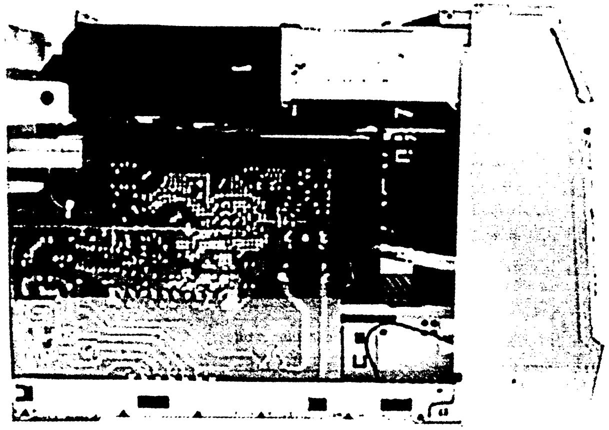
Service Positions & Repair Hints

1) During repair it is possible to disconnect the ECO6 Tuner board and/or CDC Module completely unless the fault is suspected to be in that area. This will not affect the performance of the rest of the set.

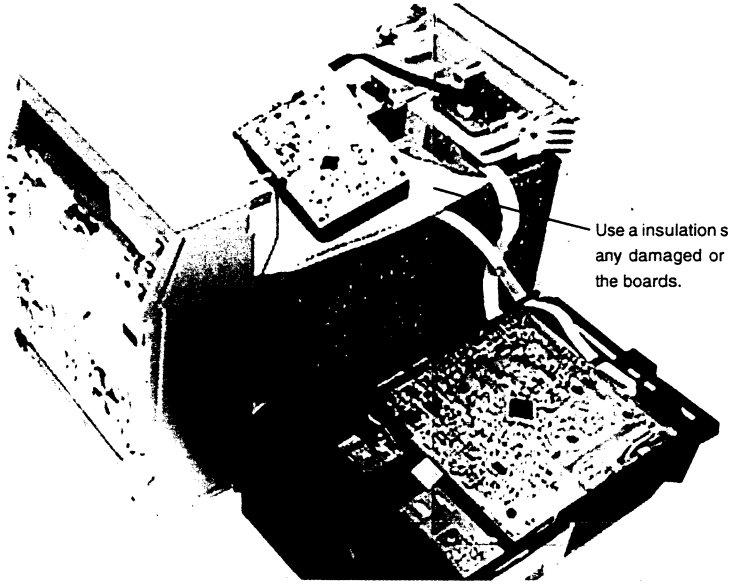
Note: The flex cables are very fragile, care should be taken not to damage them during repair. After repair, be very sure that the flex cables are inserted properly into the flex sockets before encasing, otherwise faults may occurs.

Service position A



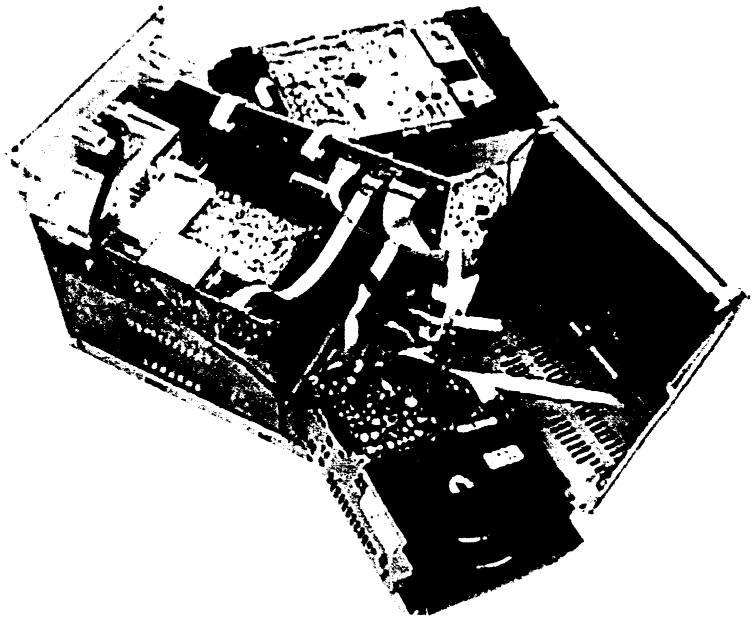


Service position B

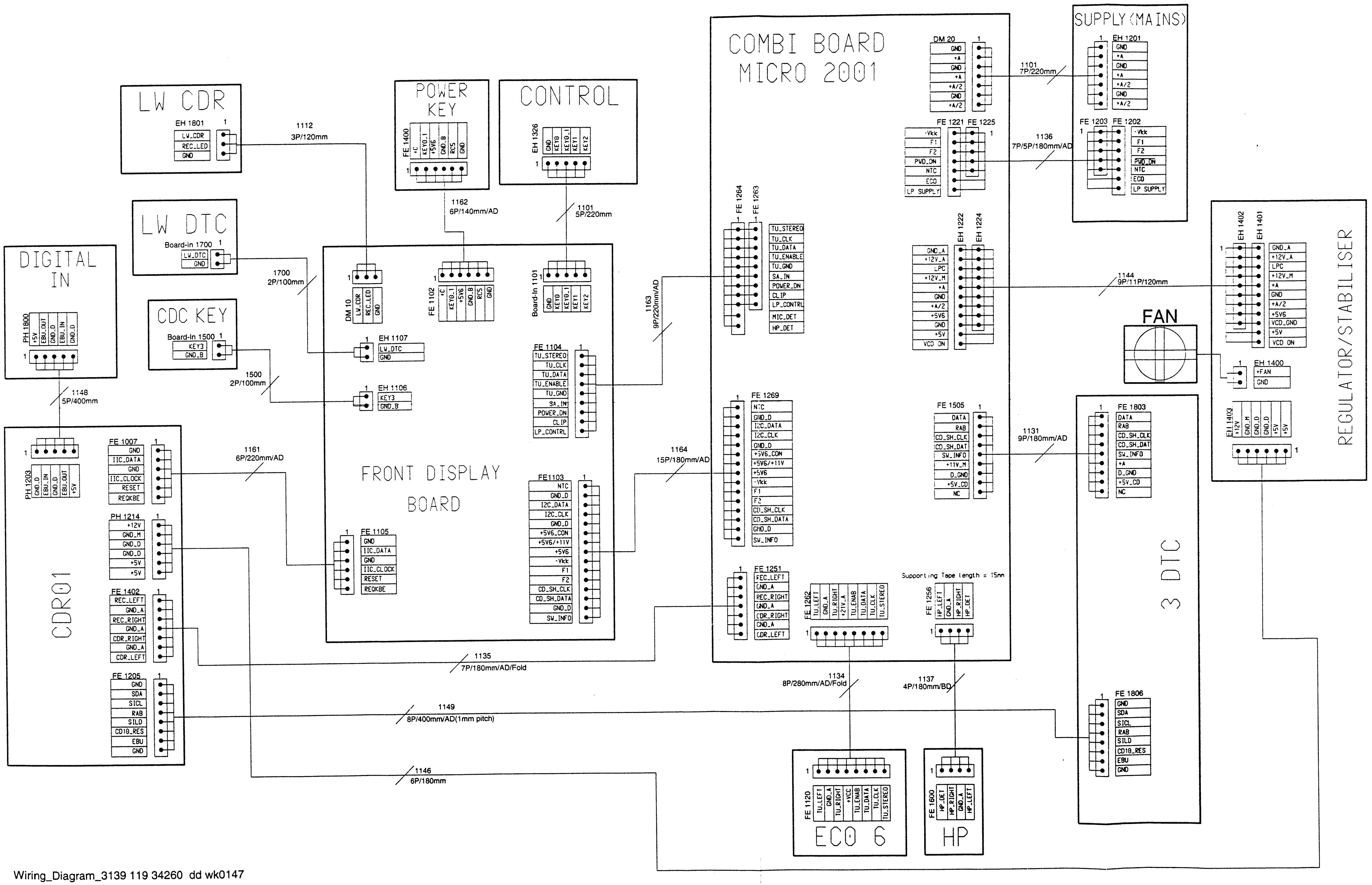


Use a insulation sheet to prevent any damaged or short-circuit of the boards.

Service position C



SET WIRING DIAGRAM

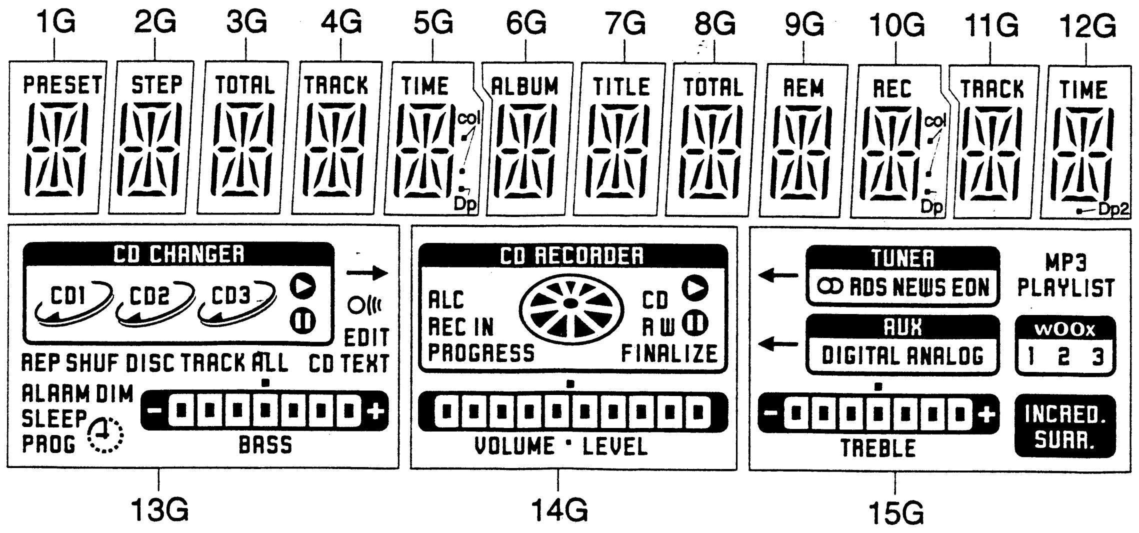

LW CDR
EH 1801
LW_CDR
REC_LED
GND
1112
3P/120mm
POWER KEY
FE 1400
+C
KEY0_1
+5V6
GND_B
RC5
GND
CONTROL
EH 1326
GND
KEY0
KEY0_1
KEY1
KEY2
1162
6P/140mm/AD
1101
5P/220mm
LW DTC
Board-in 1700
LW_DTC
GND
1700
2P/100mm
DIGITAL IN
PH 1800
+5V
EBU_OUT
GND_D
EBU_IN
GND_D
CDC KEY
Board-in 1500
KEY3
GND_B
1500
2P/100mm
1148
5P/400mm
DM 10
LW_CDR
REC_LED
GND
FE 1102
Board-in 1101
EH 1107
LW_DTC
GND
EH 1106
KEY3
GND_B
FE 1104
TU_STEREO
TU_CLK
TU_DATA
TU_ENABLE
TU_GND
SA_IN
POWER_DN
CLIP
LP_CONTRL
1163
9P/220mm/AD
FRONT DISPLAY BOARD
FE1103
NTC
GND_D
I2C_DATA
I2C_CLK
GND_D
+5V6_CON
+5V6/+11V
+5V6
-Vkk
F1
F2
CD_SH_CLK
CD_SH_DATA
GND_D
SW_INFO
FE 1105
GND
IIC_DATA
GND
IIC_CLOCK
RESET
REQKBE
1161
6P/220mm/AD
1164
15P/180mm/AD
CDR01
PH 1203
GND_D
EBU_IN
GND_D
EBU_OUT
+5V
FE 1007
GND
IIC_DATA
GND
IIC_CLOCK
RESET
REQKBE
PH 1214
+12V
GND_M
GND_D
GND_D
+5V
+5V
FE 1402
REC_LEFT
GND_A
REC_RIGHT
GND_A
CDR_RIGHT
GND_A
CDR_LEFT
FE 1205
GND
SDA
SICL
RAB
SILD
CD10_RES
EBU
GND
1135
7P/180mm/AD/Fold
1149
8P/400mm/AD(1mm pitch)
1146
6P/180mm
COMBI BOARD MICRO 2001
DM 20
GND
+A
GND
+A
+A/2
GND
+A/2
1101
7P/220mm
FE 1221
FE 1225
-Vkk
F1
F2
PWD_DN
NTC
ECO
LP SUPPLY
1136
7P/5P/180mm/AD
FE 1264
FE 1263
TU_STEREO
TU_CLK
TU_DATA
TU_ENABLE
TU_GND
SA_IN
POWER_DN
CLIP
LP_CONTRL
MIC_DET
HP_DET
EH 1222
EH 1224
GND_A
+12V_A
LPC
+12V_M
+A
GND
+A/2
+5V6
GND
+5V
VCD ON
1144
9P/11P/120mm
FE 1269
NTC
GND_D
I2C_DATA
I2C_CLK
GND_D
+5V6_CON
+5V6/+11V
+5V6
-Vkk
F1
F2
CD_SH_CLK
CD_SH_DATA
GND_D
SW_INFO
FE 1505
DATA
RAB
CD_SH_CLK
CD_SH_DAT
SW_INFO
+11V_M
D_GND
+5V_CD
NC
1131
9P/180mm/AD
FE 1251
REC_LEFT
GND_A
REC_RIGHT
GND_A
CDR_RIGHT
GND_A
CDR_LEFT
FE 1262
TU_LEFT
GND_A
TU_RIGHT
+21V_A
TU_ENAB
TU_DATA
TU_CLK
TU_STEREO
Supporting Tape length = 15mm
FE 1256
HP_LEFT
GND_A
HP_RIGHT
HP_DET
1134
8P/280mm/AD/Fold
1137
4P/180mm/BD
ECO 6
FE 1120
TU_LEFT
GND_A
TU_RIGHT
+VCC
TU_ENAB
TU_DATA
TU_CLK
TU_STEREO
HP
FE 1600
HP_DET
HP_RIGHT
GND_A
HP_LEFT
SUPPLY (MAINS)
EH 1201
GND
+A
GND
+A
+A/2
GND
+A/2
FE 1203
FE 1202
-Vkk
F1
F2
PWD_DN
NTC
ECO
LP SUPPLY
FAN
REGULATOR/STABILISER
EH 1402
EH 1401
GND_A
+12V_A
LPC
+12V_M
+A
GND
+A/2
+5V6
VCD_GND
+5V
VCD ON
EH 1400
+FAN
GND
EH 1403
+12V
GND_M
GND_D
GND_D
+5V
+5V
3 DTC
FE 1803
DATA
RAB
CD_SH_CLK
CD_SH_DAT
SW_INFO
+A
D_GND
+5V_CD
NC
FE 1806
GND
SDA
SICL
RAB
SILD
CD10_RES
EBU
GND
1

FRONT DISPLAY BOARD

TABLE OF CONTENTS

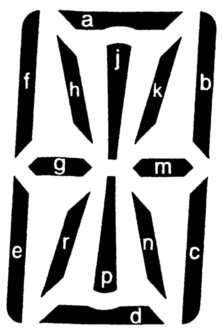
FTD Display pin connection 6-1
Front Display Board - Chip layout 6-2
Front Display Board - Component layout 6-3
Front Display Board - Circuit diagram 6-4
Electrical parts list.. 6-5

FTD DISPLAY PIN CONNECTION



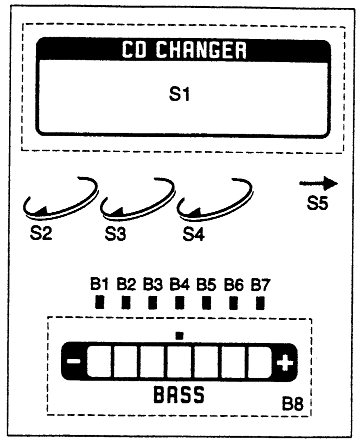
1G
2G
3G
4G
5G
6G
7G
8G
9G
10G
11G
12G
PRESET
STEP
TOTAL
TRACK
TIME
col
Dp
ALBUM
TITLE
TOTAL
REM
REC
col
Dp
TRACK
TIME
Dp2
CD CHANGER
CD1
CD2
CD3
O(((
EDIT
REP SHUF DISC TRACK ALL CD TEXT
ALARM DIM
SLEEP
PROG
BASS
CD RECORDER
ALC
REC IN PROGRESS
CD
RW
FINALIZE
VOLUME · LEVEL
TUNER
ꝏ RDS NEWS EON
MP3 PLAYLIST
AUX
DIGITAL ANALOG
wOOx
1 2 3
TREBLE
INCRED. SURR.
13G
14G
15G

FTD DISPLAY PIN CONNECTION



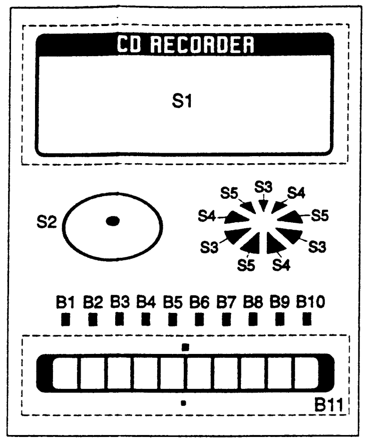
a
f
h
j
k
b
g
m
e
r
p
n
c
d

(1G-12G)



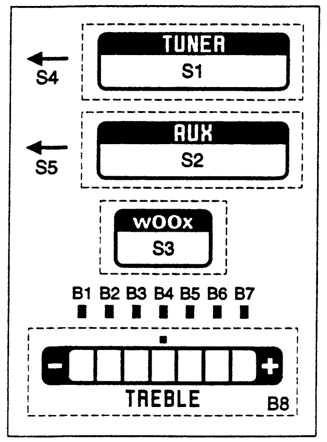
CD CHANGER
S1
S2
S3
S4
S5
B1 B2 B3 B4 B5 B6 B7
BASS
B8

(13G)



CD RECORDER
S1
S2
S3
S4
S5
B1 B2 B3 B4 B5 B6 B7 B8 B9 B10
B11

(14G)



TUNER
S1
S4
AUX
S2
S5
wOOx
S3
B1 B2 B3 B4 B5 B6 B7
TREBLE
B8

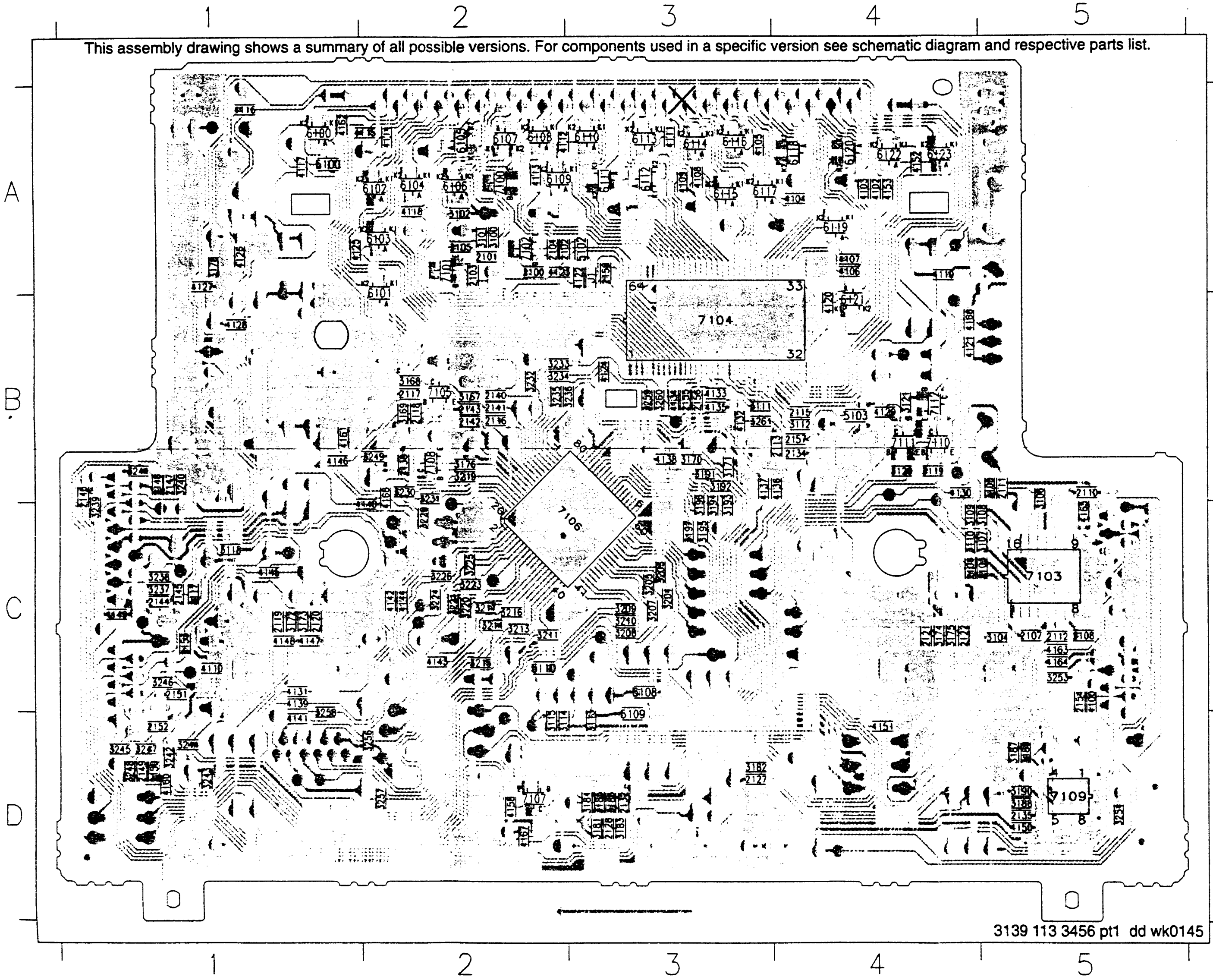
(15G)

	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G	12G	13G	14G	15G
P1	a	a	a	a	a	a	a	a	a	a	a	a	S1	S1	S1
P2	h	h	h	h	h	h	h	h	h	h	h	h	S2	S2	S2
P3	j	j	j	j	j	j	j	j	j	j	j	j	S3	S3	S3
P4	k	k	k	k	k	k	k	k	k	k	k	k	S4	S4	S4
P5	b	b	b	b	b	b	b	b	b	b	b	b	S5	S5	S5
P6	f	f	f	f	f	f	f	f	f	f	f	f	B1	B1	B1
P7	m	m	m	m	m	m	m	m	m	m	m	m	B2	B2	B2
P8	g	g	g	g	g	g	g	g	g	g	g	g	B3	B3	B3
P9	c	c	c	c	c	c	c	c	c	c	c	c	B4	B4	B4
P10	e	e	e	e	e	e	e	e	e	e	e	e	B5	B5	B5
P11	r	r	r	r	r	r	r	r	r	r	r	r	B6	B6	B6
P12	n	n	n	n	n	n	n	n	n	n	n	n	B7	B7	B7
P13	d	d	d	d	d	d	d	d	d	d	d	d	B8	B8	B8
P14	p	p	p	p	p	p	p	p	p	p	p	p	CD1	B9	ꝏ
P15	PRESET	STEP	TOTAL	TRACK	TIME	ALBUM	TITLE	TOTAL	REM	REC	TRACK	TIME	CD2	B10	RDS
P16	-	-	-	-	col	-	-	-	-	col	-	Dp2	CD3	B11	NEWS
P17	-	-	-	-	Dp	-	-	-	-	Dp	-	-	▶	VOLUME	EON
P18	-	-	-	-	-	-	-	-	-	-	-	-	⏸	LEVEL	MP3
P19	-	-	-	-	-	-	-	-	-	-	-	-	REP	▶	PLAYLIST
P20	-	-	-	-	-	-	-	-	-	-	-	-	SHUF	⏸	DIGITAL
P21	-	-	-	-	-	-	-	-	-	-	-	-	DISC	ALC	ANALOG
P22	-	-	-	-	-	-	-	-	-	-	-	-	TRACK	REC IN PROGRESS	1
P23	-	-	-	-	-	-	-	-	-	-	-	-	ALL	CD	2
P24	-	-	-	-	-	-	-	-	-	-	-	-	CD	R	3
P25	-	-	-	-	-	-	-	-	-	-	-	-	TEXT	W	INCRED. SURR.
P26	-	-	-	-	-	-	-	-	-	-	-	-	EDIT	FINALIZE	-
P27	-	-	-	-	-	-	-	-	-	-	-	-	ALARM	-	-
P28	-	-	-	-	-	-	-	-	-	-	-	-	DIM	-	-
P29	-	-	-	-	-	-	-	-	-	-	-	-	SLEEP	-	-
P30	-	-	-	-	-	-	-	-	-	-	-	-	◷	-	-
P31	-	-	-	-	-	-	-	-	-	-	-	-	PROG	-	-
P32	-	-	-	-	-	-	-	-	-	-	-	-	O(((	-	-

PIN NO.	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
CONNECTION	P19	P18	P17	P16	P15	P14	P13	P12	P11	P10	P9	P8	P7	P6	P5	P4	P3	P2	P1	-	15G	14G	13G	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G	-	-	F1	-	F1

PIN NO.	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
CONNECTION	F2	-	F2	-	-	P32	P31	P30	P29	P28	P27	P26	P25	P24	P23	P22	P21	P20

FRONT DISPLAY BOARD - CHIP LAYOUT

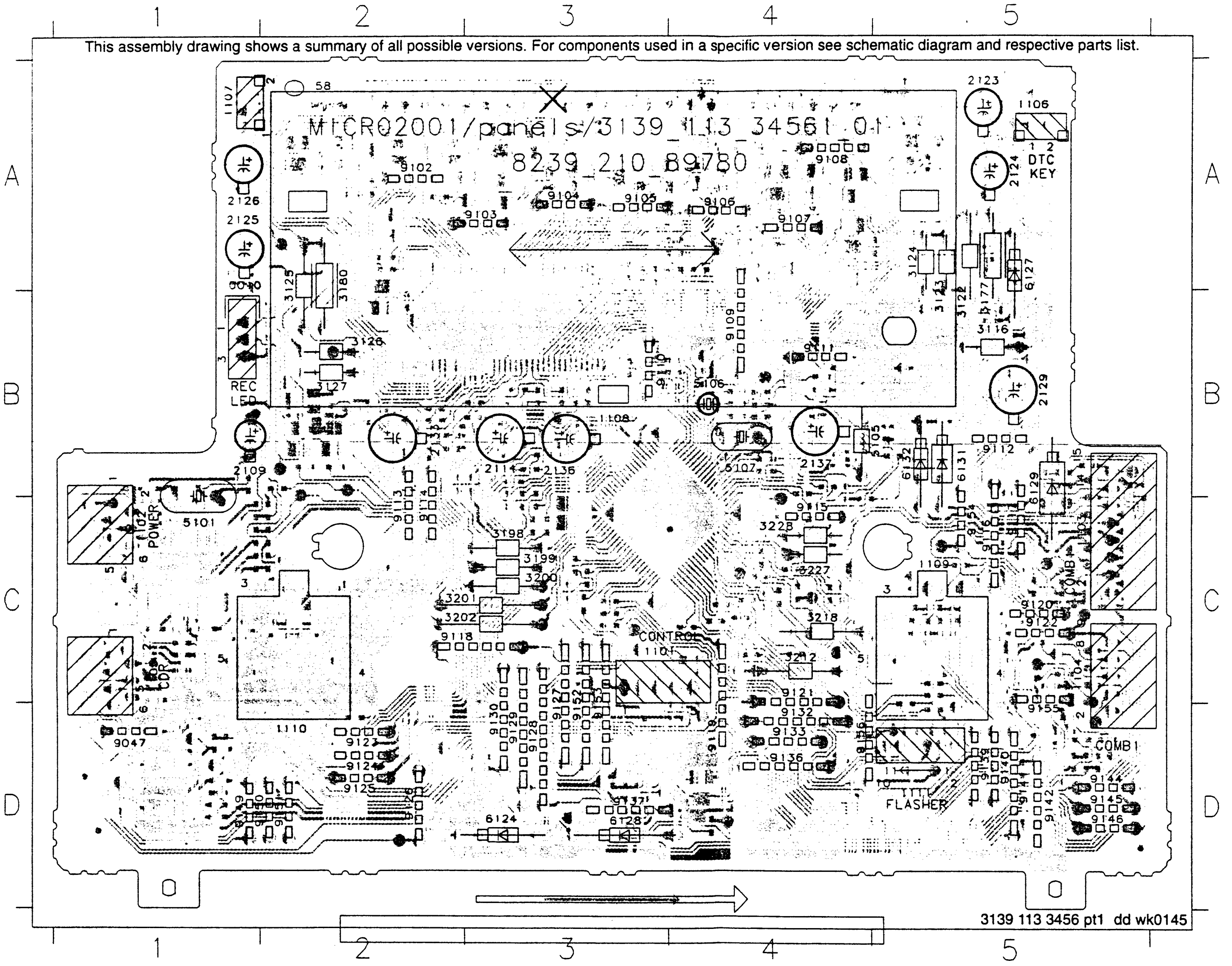


This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

3139 113 3456 pt1 dd wk0145

J1	A3	3117	C1	3239	C1	4145	C1
2100	A2	3118	C1	3240	B1	4146	B1
2101	A2	3119	B4	3241	B1	4147	C1
2102	A2	3120	B4	3242	D1	4148	C1
2103	A2	3121	B4	3243	D1	4149	C1
2104	A2	3167	B2	3244	D1	4150	D5
2105	A2	3168	B2	3245	D1	4151	D4
2106	C4	3169	B2	3246	C1	4152	A4
2107	C5	3170	B3	3247	D1	4153	A4
2108	C5	3171	B3	3248	D1	4158	D2
2110	B5	3172	C1	3249	B2	4160	D1
2111	B5	3173	C1	3253	C5	4161	B1
2112	C5	3174	C4	3254	D5	4162	A1
2113	B4	3175	C4	3256	D2	4163	C5
2115	B4	3176	B2	3257	D2	4164	C5
2116	B2	3178	A1	3258	D1	4165	C5
2117	B2	3181	D3	3259	B3	4166	B2
2118	B2	3182	D3	3260	B3	4167	D2
2119	C1	3183	D3	3261	B3	4168	B4
2120	C1	3184	D3	4100	C5	5100	A1
2121	C4	3185	D3	4102	A4	5102	A3
2122	C4	3186	D3	4103	A4	5103	B4
2127	D3	3187	D5	4104	A4	5108	C3
2128	D3	3188	D5	4105	A3	5109	D3
2132	D3	3189	D5	4106	A4	5110	C2
2134	B4	3190	D5	4107	A4	6100	A1
2135	D5	3191	B3	4108	A3	6101	A2
2138	B2	3192	B3	4109	A3	6102	A2
2140	B2	3193	C3	4110	C1	6103	A2
2141	B2	3194	C3	4111	A3	6104	A2
2142	B2	3195	C3	4112	A2	6105	A2
2143	B2	3196	C3	4113	A2	6106	A2
2144	C1	3197	C3	4114	A2	6107	A2
2145	C1	3203	C3	4115	A2	6108	A2
2146	B1	3204	C3	4116	A1	6109	A2
2147	B1	3205	C3	4117	A1	6110	A3
2148	B1	3207	C3	4118	A2	6111	A3
2149	D1	3208	C3	4119	A4	6112	A3
2150	D1	3209	C3	4120	B4	6113	A3
2151	C1	3210	C3	4121	B4	6114	A3
2152	D1	3211	C2	4122	A3	6115	A3
2153	C1	3213	C2	4123	A2	6116	A3
2154	C5	3214	C2	4124	B3	6117	A3
2155	B3	3215	C2	4125	A1	6118	A4
2156	B3	3216	C2	4126	A1	6119	A4
2157	B4	3217	C2	4127	A1	6120	A4
2158	A3	3219	B2	4128	B1	6121	B4
3100	A2	3220	C2	4129	B4	6122	A4
3101	A2	3221	C2	4130	B4	6123	A4
3102	A2	3223	C2	4131	C1	7100	A2
3103	C5	3224	C2	4132	B3	7101	A2
3104	C5	3225	C2	4133	B3	7102	A2
3105	B5	3226	C2	4134	B3	7103	C5
3106	B5	3229	C2	4135	B3	7104	B3
3107	C5	3230	B2	4136	B4	7105	B2
3108	C5	3231	B2	4137	B3	7106	C3
3109	C4	3232	B2	4138	B3	7107	D2
3110	C4	3233	B2	4139	C1	7108	B2
3111	B3	3234	B2	4140	C2	7109	D5
3112	B4	3235	B2	4141	D1	7110	B4
3113	D3	3236	B3	4142	C2	7111	B4
3114	D2	3237	C1	4143	C2	7112	B4
3115	D2	3238	C1	4144	C2		

FRONT DISPLAY BOARD - COMPONENT LAYOUT



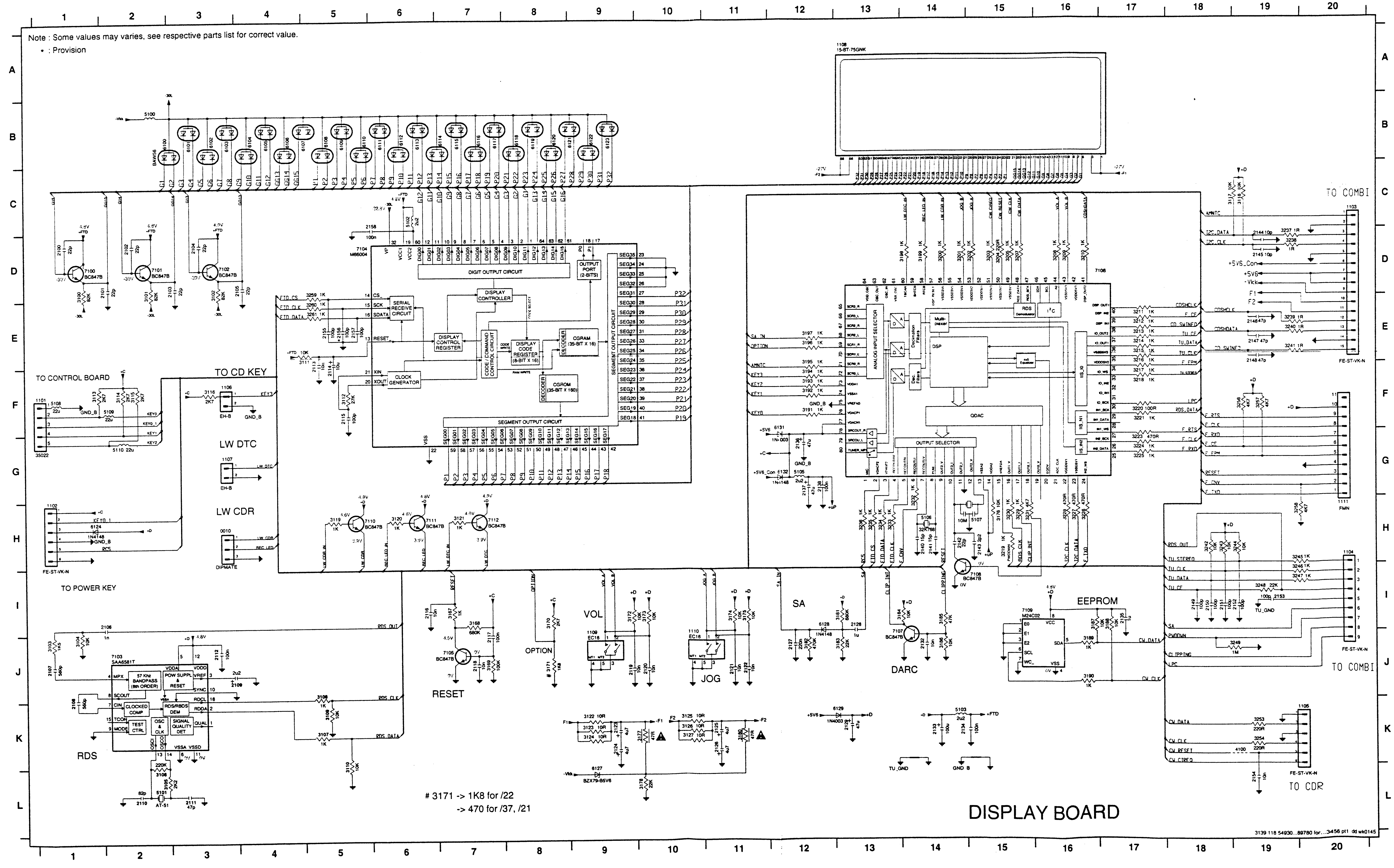
This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

1
2
3
4
5
A
B
C
D
MICRO2001/panels/3139_113_34561_01
8239_210_89780
1107
58
2123
1106
DTC KEY
2124
2126
2125
9102
9103
9104
9105
9106
9107
9108
9109
9110
9111
3125
3180
3126
3127
3124
3123
3122
3177
3116
6127
2129
REC LED
5106
1108
5107
2109
2114
2136
2137
5105
6132
6131
9112
6129
POWER
5101
9113
3198
3199
3200
3201
3202
3228
3227
9115
1109
3218
9118
CONTROL
1101
3212
9121
9132
9133
9136
9120
9122
1104
1110
9047
9123
9124
9125
9130
9129
9128
9127
9152
6124
6128
FLASHER
1111
9139
9140
9141
9142
9144
9145
9146
9155
COMB1
3139 113 3456 pt1 dd wk0145

0010	A1
1101	C3
1102	C1
1103	C5
1104	C5
1105	C1
1106	A5
1107	A1
1108	B3
1109	C5
1110	D2
1111	D5
2109	B1
2114	B3
2123	A5
2124	A5
2125	A1
2126	A1
2129	B5
2133	B2
2136	B3
2137	B4
3116	B5
3122	B5
3123	B5
3124	A5
3125	A2
3126	B2
3127	B2
3177	B5
3180	A2
3198	C3
3199	C3
3200	C3
3201	C2
3202	C2
3212	C4
3218	C4
3227	C4
3228	C4
5101	C1
5105	B5
5106	B4
5107	B4
6124	D3
6127	A5
6128	D3
6129	B5
6131	B5
6132	B5
9047	D1
9102	A2
9103	A3
9104	A3
9105	A3
9106	A4
9107	A4
9108	A4
9109	B4
9110	B3
9111	B4
9112	B5
9113	C2
9114	C2
9115	C4
9116	C5
9117	C5
9118	C2
9119	D4
9120	C5
9121	C4
9122	C5
9123	D2
9124	D2
9125	D2
9126	D2
9127	D3
9128	D3
9129	D3
9130	D3
9132	D4
9133	D4
9136	D4
9137	D3
9139	D5
9140	D5
9141	D5
9142	D5
9144	D5
9145	D5
9146	D5
9149	D1
9150	D1
9151	D2
9152	D3
9153	D3
9154	C5
9155	D5
9156	D4

FRONT DISPLAY BOARD - CIRCUIT DIAGRAM

0010	H3
1101	F1
1102	H1
1103	C20
1104	H20
1105	K19
1106	F3
1107	G3
1108	A13
1109	J9
1110	J10
1111	H20
2100	D1
2101	D2
2102	D2
2103	D3
2104	D3
2105	D4
2106	I2
2107	J1
2108	J1
2109	J3
2110	L2
2111	L3
2112	J3
2113	E5
2114	F5
2115	F5
2116	I6
2117	J7
2118	J7
2119	J9
2120	J10
2121	J11
2122	J11
2123	K9
2124	K9
2125	K11
2126	K11
2127	J12
2128	I13
2129	K13
2132	J14
2133	K14
2134	K14
2135	I17
2136	G12
2137	G12
2138	G12
2140	H14
2141	H14
2142	H14
2143	H15
2144	D19
2145	D19
2146	E19
2147	E19
2148	F19
2149	I18
2150	I18
2151	I18
2152	I19
2153	I19
2154	L19
2155	E5
2156	E5
2157	E5
2158	C6
3100	D1
3101	D2
3102	D3
3103	J1
3104	J1
3105	L2
3106	L2
3107	K5
3108	J5
3109	K5
3110	K5
3111	E5
3112	F5
3113	F1
3114	F2
3115	F2
3116	F3
3117	C19
3118	C19
3119	H5
3120	H6
3121	H7
3122	K9
3123	K9
3124	K9
3125	K10
3126	K10
3127	K10
3167	I7
3168	I7
3169	J7
3170	I8
3171	J8
3172	I9
3173	I10
3174	I11
3175	I11
3176	H15
3177	K10
3178	L10
3180	K11
3181	I13
3182	J12
3183	J13
3184	I13
3185	I14
3186	J14
3187	I16
3188	I17
3189	J16
3190	J16
3191	F12
3192	F12
3193	F12
3194	F12
3195	E12
3196	E12
3197	E12
3198	D14
3199	D14
3200	D14
3201	D14
3202	D15
3203	D15
3204	D15
3205	C15
3207	C15
3208	D16
3209	D16
3210	D16
3211	E17
3212	E17
3213	E17
3214	E17
3215	E17
3216	E17
3217	F17
3218	F17
3219	H15
3220	F17
3221	F17
3223	G17
3224	G17
3225	G17
3226	H16
3227	H16
3228	H16
3229	H15
3230	H15
3231	H15
3232	H14
3233	H13
3234	H13
3235	H13
3236	H13
3237	D19
3238	D19
3239	E19
3240	E19
3241	E19
3242	H18
3243	H18
3244	H19
3245	H19
3246	I19
3247	I19
3248	I19
3249	J19
3253	K19
3254	K19
3256	F19
3257	F19
3258	H19
3259	D5
3260	E5
3261	E5
4100	K19
5100	B2
5101	L2
5102	C8
5103	K14
5105	G12
5106	H14
5107	H15
5108	F1
5109	F2
5110	G2
6100	B2
6101	B3
6102	B3
6103	B3
6104	B4
6105	B4
6106	B4
6107	B5
6108	B5
6109	B5
6110	B5
6111	B6
6112	B6
6113	B6
6114	B7
6115	B7
6116	B7
6117	B7
6118	B8
6119	B8
6120	B8
6121	B9
6122	B9
6123	B9
6124	H1
6127	L9
6128	I12
6129	K13
6131	F12
6132	G12
7100	D1
7101	D2
7102	D3
7103	J2
7104	D5
7105	J7
7106	D17
7107	J14
7108	I15
7109	I15
7110	H6
7111	H6
7112	H7


Note : Some values may varies, see respective parts list for correct value.

• : Provision

3171 -> 1K8 for /22

-> 470 for /37, /21

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
A
B
C
D
E
F
G
H
I
J
K
L
1108
15-BT-75GNK
7104
M66004
DIGIT OUTPUT CIRCUIT
SERIAL RECEIVE CIRCUIT
DISPLAY CONTROLLER
DISPLAY CONTROL REGISTER
CODE / COMMAND CONTROL CIRCUIT
DISPLAY CODE REGISTER (8-BIT X 16)
DECODER
CGRAM (35-BIT X 16)
CGROM (35-BIT X 160)
OUTPUT PORT (2-BITS)
CLOCK GENERATOR
SEGMENT OUTPUT CIRCUIT
TO CONTROL BOARD
TO CD KEY
LW DTC
LW CDR
TO POWER KEY
RDS
7103
SAA6581T
57 Khz BANDPASS (8th ORDER)
POW SUPPL & RESET
CLOCKED COMP
RDS/RBDS DEM
TEST CTRL
OSC & CLK
SIGNAL QUALITY DET
RESET
OPTION
VOL
JOG
SA
DARC
EEPROM
7109
M24C02
7106
ANALOG INPUT SELECTOR
Decimation Filters
DSP
Multi-plexer
RDS Demodulator
QDAC
OUTPUT SELECTOR
TO COMBI
FE-ST-VK-N
TO CDR
7100 BC847B
7101 BC847B
7102 BC847B
7105 BC847B
7107 BC847B
7108 BC847B
7110 BC847B
7111 BC847B
7112 BC847B
DISPLAY BOARD

MISCELLANEOUS

1102	4822 265 11207	Flex Connector 6P	
1103	4822 265 10979	Flex Connector 15P	
1104	4822 265 11531	Flex Connector 9P	
1105	4822 265 11207	Flex Connector 6P	
1108	3139 110 52830	FTD Display	
1109	2422 129 16501	Rotary Encoder 12P	
1110	2422 129 16689	Rotary Encoder 12P	
1111	2422 025 16981	Flex Connector 11P	

CAPACITORS

2100	4822 122 33761	22pF 5% 50V	
2101	4822 122 33761	22pF 5% 50V	
2102	4822 122 33761	22pF 5% 50V	
2103	4822 122 33761	22pF 5% 50V	
2104	4822 122 33761	22pF 5% 50V	
2105	4822 122 33761	22pF 5% 50V	
2106	3198 016 31020	1nF 25V	/22
2107	4822 126 14249	560pF 10% 50V	/22
2108	4822 126 14249	560pF 10% 50V	/22
2109	4822 124 22652	2,2uF 20% 50V	/22
2110	4822 126 14226	82pF 5% 50V	/22
2111	4822 122 33777	47pF 5% 63V	/22
2112	4822 126 14305	100nF 10% 16V	/22
2113	5322 126 11583	10nF 10% 50V	
2114	4822 124 11947	10uF 20% 16V	
2115	4822 122 31765	100pF 2% 63V	
2116	5322 126 11583	10nF 10% 50V	
2117	4822 126 14305	100nF 10% 16V	
2118	5322 126 11583	10nF 10% 50V	
2119	5322 126 11583	10nF 10% 50V	
2120	5322 126 11583	10nF 10% 50V	
2121	5322 126 11583	10nF 10% 50V	
2122	5322 126 11583	10nF 10% 50V	
2123	4822 124 40769	4,7uF 20% 100V	
2124	4822 124 40769	4,7uF 20% 100V	
2125	4822 124 12032	4,7uF 20% 50V	
2126	4822 124 12032	4,7uF 20% 50V	
2127	4822 126 13879	220nF +80/-20% 16V	
2128	3198 017 41050	1uF 10V	
2129	4822 124 81286	47uF 20% 16V	
2132	5322 126 11583	10nF 10% 50V	
2133	4822 124 23432	100uF 20% 10V	
2134	4822 126 14305	100nF 10% 16V	
2135	3198 017 41050	1uF 10V	
2136	4822 124 81286	47uF 20% 16V	
2137	4822 124 81286	47uF 20% 16V	
2138	4822 126 14305	100nF 10% 16V	
2140	4822 122 33752	15pF 5% 50V	
2141	4822 122 33752	15pF 5% 50V	
2142	4822 122 33761	22pF 5% 50V	
2143	4822 126 14223	2,2pF 50V	
2144	4822 122 33741	10pF 10% 50V	
2145	4822 122 33741	10pF 10% 50V	
2146	4822 122 33777	47pF 5% 63V	
2147	4822 122 33777	47pF 5% 63V	
2148	4822 122 33777	47pF 5% 63V	
2149	4822 122 31765	100pF 2% 63V	
2150	4822 122 31765	100pF 2% 63V	
2151	4822 122 31765	100pF 2% 63V	
2152	4822 122 31765	100pF 2% 63V	
2153	4822 122 31765	100pF 2% 63V	
2154	5322 126 11583	10nF 10% 50V	
2155	4822 122 31765	100pF 2% 63V	
2157	4822 122 31765	100pF 2% 63V	
2158	4822 126 14305	100nF 10% 16V	

RESISTORS

3100	4822 117 12864	82k 5% 0,6W	
3101	4822 117 12864	82k 5% 0,6W	
3102	4822 117 12864	82k 5% 0,6W	
3103	4822 051 30152	1k5 5% 0,062W	/22
3104	4822 051 30103	10k 5% 0,062W	/22
3105	4822 051 30222	2k2 5% 0,062W	/22
3106	4822 117 12891	220k 1%	/22
3107	4822 051 30102	1k 5% 0,062W	/22
3108	4822 051 30102	1k 5% 0,062W	/22
3109	4822 051 30103	10k 5% 0,062W	/37
3110	4822 051 30103	10k 5% 0,062W	/37
3111	4822 051 30103	10k 5% 0,062W	
3112	4822 051 30273	27k 5% 0,062W	
3113	4822 051 30272	2k7 5% 0,062W	
3114	4822 051 30272	2k7 5% 0,062W	
3115	4822 051 30272	2k7 5% 0,062W	
3116	4822 116 52263	2k7 5% 0,5W	
3117	4822 051 30103	10k 5% 0,062W	
3118	4822 051 30103	10k 5% 0,062W	
3119	4822 051 30102	1k 5% 0,062W	
3120	4822 051 30102	1k 5% 0,062W	
3121	4822 051 30102	1k 5% 0,062W	
3122	4822 116 52176	10R 5% 0,5W	
3123	4822 116 52176	10R 5% 0,5W	
3124	4822 116 52176	10R 5% 0,5W	
3125	4822 116 52176	10R 5% 0,5W	
3126	4822 116 52176	10R 5% 0,5W	
3127	4822 116 52176	10R 5% 0,5W	
3167	4822 051 30102	1k 5% 0,062W	
3168	4822 051 30684	680k 5% 0,062W	
3169	4822 117 13632	100k 1% 0,62W	
3170	4822 051 30272	2k7 5% 0,062W	
3171	4822 117 12903	1k8 1% 0,063W	/22
3171	4822 051 30471	470R 5% 0,062W	/37
3172	4822 051 30103	10k 5% 0,062W	
3173	4822 051 30103	10k 5% 0,062W	
3174	4822 051 30103	10k 5% 0,062W	

3175	4822 051 30103	10k 5% 0,062W	
3176	4822 051 30103	10k 5% 0,062W	
3177	4822 052 10479 △	47R 5% 0,33W	
3178	4822 051 30223	22k 5% 0,062W	
3180	4822 052 10479 △	47R 5% 0,33W	
3181	4822 051 30684	680k 5% 0,062W	
3182	4822 051 30474	470k 5% 0,062W	
3183	4822 051 30223	22k 5% 0,062W	
3184	4822 051 30103	10k 5% 0,062W	
3185	4822 117 12925	47k 1% 0,063W	
3186	4822 051 30103	10k 5% 0,062W	
3187	4822 051 30103	10k 5% 0,062W	
3188	4822 051 30103	10k 5% 0,062W	
3189	4822 051 30102	1k 5% 0,062W	
3190	4822 051 30102	1k 5% 0,062W	
3191	4822 051 30102	1k 5% 0,062W	
3192	4822 051 30102	1k 5% 0,062W	
3193	4822 051 30102	1k 5% 0,062W	
3194	4822 051 30102	1k 5% 0,062W	
3195	4822 051 30102	1k 5% 0,062W	
3196	4822 051 30102	1k 5% 0,062W	
3197	4822 051 30102	1k 5% 0,062W	
3198	4822 050 11002	1k 1% 0,4W	
3199	4822 050 11002	1k 1% 0,4W	
3200	4822 050 11002	1k 1% 0,4W	
3201	4822 050 11002	1k 1% 0,4W	
3202	4822 050 11002	1k 1% 0,4W	
3203	4822 051 30102	1k 5% 0,062W	
3204	4822 051 30221	220R 5% 0,062W	
3205	4822 051 30102	1k 5% 0,062W	
3207	4822 051 30102	1k 5% 0,062W	
3208	4822 051 30102	1k 5% 0,062W	
3209	4822 051 30102	1k 5% 0,062W	
3210	4822 051 30102	1k 5% 0,062W	
3211	4822 051 30102	1k 5% 0,062W	
3212	4822 050 11002	1k 1% 0,4W	
3213	4822 051 30102	1k 5% 0,062W	
3214	4822 051 30102	1k 5% 0,062W	
3215	4822 051 30102	1k 5% 0,062W	
3216	4822 051 30102	1k 5% 0,062W	
3217	4822 051 30102	1k 5% 0,062W	
3218	4822 050 11002	1k 1% 0,4W	
3219	4822 051 30102	1k 5% 0,062W	
3220	4822 051 30101	100R 5% 0,062W	/22
3220	4822 051 30102	1k 5% 0,062W	/37
3221	4822 051 30102	1k 5% 0,062W	
3223	4822 051 30471	470R 5% 0,062W	
3224	4822 051 30102	1k 5% 0,062W	
3225	4822 051 30102	1k 5% 0,062W	
3226	4822 051 30471	470R 5% 0,062W	
3227	4822 116 83883	470R 5% 0,5W	
3228	4822 116 83883	470R 5% 0,5W	
3229	4822 051 30102	1k 5% 0,062W	
3230	4822 051 30102	1k 5% 0,062W	
3231	4822 051 30472	4k7 5% 0,062W	
3232	4822 051 30102	1k 5% 0,062W	
3233	4822 051 30102	1k 5% 0,062W	
3234	4822 051 30102	1k 5% 0,062W	
3235	4822 051 30102	1k 5% 0,062W	
3236	4822 051 30102	1k 5% 0,062W	
3237	4822 117 12917	1R 5% 0,062W	
3238	4822 117 12917	1R 5% 0,062W	
3239	4822 117 12917	1R 5% 0,062W	
3240	4822 117 12917	1R 5% 0,062W	
3241	4822 117 12917	1R 5% 0,062W	
3242	4822 051 30103	10k 5% 0,062W	
3243	4822 051 30103	10k 5% 0,062W	
3244	4822 051 30103	10k 5% 0,062W	
3245	4822 051 30102	1k 5% 0,062W	
3246	4822 051 30102	1k 5% 0,062W	
3247	4822 051 30102	1k 5% 0,062W	
3248	4822 051 30223	22k 5% 0,062W	
3249	4822 051 30105	1M 5% 0,062W	
3253	4822 051 30221	220R 5% 0,062W	
3254	4822 051 30221	220R 5% 0,062W	
3256	4822 051 30472	4k7 5% 0,062W	
3257	4822 051 30472	4k7 5% 0,062W	
3258	4822 051 30472	4k7 5% 0,062W	
3259	4822 051 30102	1k 5% 0,062W	
3260	4822 051 30102	1k 5% 0,062W	
3261	4822 051 30102	1k 5% 0,062W	
4100	4822 051 30008	0R Jumper 0603	
4102	4822 051 30008	0R Jumper 0603	
4103	4822 051 30008	0R Jumper 0603	
4104	4822 051 30008	0R Jumper 0603	
4105	4822 051 30008	0R Jumper 0603	
4106	4822 051 30008	0R Jumper 0603	
4107	4822 051 30008	0R Jumper 0603	
4108	4822 051 30008	0R Jumper 0603	
4109	4822 051 30008	0R Jumper 0603	
4110	4822 051 30008	0R Jumper 0603	
4111	4822 051 30008	0R Jumper 0603	
4112	4822 051 30008	0R Jumper 0603	
4113	4822 051 30008	0R Jumper 0603	
4114	4822 051 30008	0R Jumper 0603	
4115	4822 051 30008	0R Jumper 0603	
4116	4822 051 30008	0R Jumper 0603	
4117	4822 051 30008	0R Jumper 0603	
4118	4822 051 30008	0R Jumper 0603	
4119	4822 051 30008	0R Jumper 0603	
4120	4822 051 30008	0R Jumper 0603	
4121	4822 051 30008	0R Jumper 0603	
4122	4822 051 30008	0R Jumper 0603	
4124	4822 051 30008	0R Jumper 0603	

RESISTORS

4125	4822 051 30008	0R Jumper 0603
4126	4822 051 30008	0R Jumper 0603
4127	4822 051 30008	0R Jumper 0603
4128	4822 051 30008	0R Jumper 0603
4129	4822 051 30008	0R Jumper 0603
4130	4822 051 30008	0R Jumper 0603
4131	4822 051 30008	0R Jumper 0603
4132	4822 051 30008	0R Jumper 0603
4133	4822 051 30008	0R Jumper 0603
4134	4822 051 30008	0R Jumper 0603
4135	4822 051 30008	0R Jumper 0603
4136	4822 051 30008	0R Jumper 0603
4137	4822 051 30008	0R Jumper 0603
4138	4822 051 30008	0R Jumper 0603
4139	4822 051 30008	0R Jumper 0603
4140	4822 051 30008	0R Jumper 0603
4141	4822 051 30008	0R Jumper 0603
4142	4822 051 30008	0R Jumper 0603
4143	4822 051 30008	0R Jumper 0603
4144	4822 051 30008	0R Jumper 0603
4145	4822 051 30008	0R Jumper 0603
4146	4822 051 30008	0R Jumper 0603
4147	4822 051 30008	0R Jumper 0603
4148	4822 051 30008	0R Jumper 0603
4149	4822 051 30008	0R Jumper 0603
4150	4822 051 30008	0R Jumper 0603
4151	4822 051 30008	0R Jumper 0603
4152	4822 051 30008	0R Jumper 0603
4153	4822 051 30008	0R Jumper 0603
4158	4822 051 30008	0R Jumper 0603
4160	4822 051 30008	0R Jumper 0603
4161	4822 051 30008	0R Jumper 0603
4162	4822 051 30008	0R Jumper 0603
4163	4822 051 30008	0R Jumper 0603
4164	4822 051 30008	0R Jumper 0603
4165	4822 051 30008	0R Jumper 0603
4166	4822 051 30008	0R Jumper 0603
4167	4822 051 30008	0R Jumper 0603
4168	4822 051 30008	0R Jumper 0603

COILS & FILTERS

5100	4822 156 21729	FXDIND 0805 100MHz 1k	
5101	4822 242 11033	RES XTL 4,332MHz	/22
5102	4822 157 10586	Coil 2,2uH 10%	
5103	4822 157 10586	Coil 2,2uH 10%	
5105	4822 157 62552	Coil 2,2uH 5%	
5106	4822 242 70938	RES XTL 32,768kHz	
5107	2422 540 98526	RES CER 10MHz	
5108	4822 157 11828	Coil 22uH 20%	
5109	4822 157 11828	Coil 22uH 20%	
5110	4822 157 11828	Coil 22uH 20%	

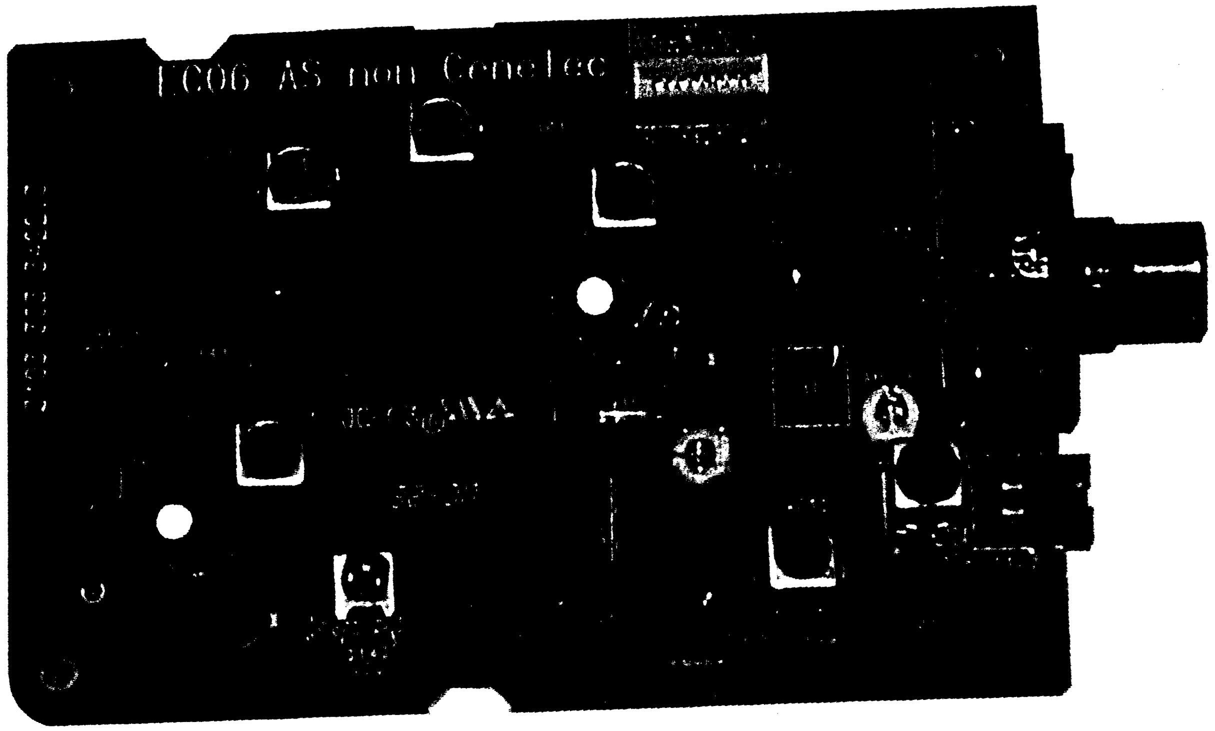
DIODES

6100	5322 130 30691	BAW56
6101	5322 130 30691	BAW56
6102	5322 130 30691	BAW56
6103	5322 130 30691	BAW56
6104	5322 130 30691	BAW56
6105	5322 130 30691	BAW56
6106	5322 130 30691	BAW56
6107	5322 130 30691	BAW56
6108	5322 130 30691	BAW56
6109	5322 130 30691	BAW56
6110	5322 130 30691	BAW56
6111	5322 130 30691	BAW56
6112	5322 130 30691	BAW56
6113	5322 130 30691	BAW56
6114	5322 130 30691	BAW56
6115	5322 130 30691	BAW56
6116	5322 130 30691	BAW56
6117	5322 130 30691	BAW56
6118	5322 130 30691	BAW56
6119	5322 130 30691	BAW56
6120	5322 130 30691	BAW56
6121	5322 130 30691	BAW56
6122	5322 130 30691	BAW56
6123	5322 130 30691	BAW56
6124	4822 130 30621	1N4148
6127	4822 130 34173	BZX79-B5V6
6128	4822 130 30621	1N4148
6129	4822 130 31878	1N4003G
6131	4822 130 31878	1N4003G
6132	4822 130 30621	1N4148

TRANSISTORS & INTEGRATED CIRCUITS

7100	4822 130 60511	BC847B	
7101	4822 130 60511	BC847B	
7102	4822 130 60511	BC847B	
7103	9352 686 05118	SAA6581T	/22
7104	9322 168 17668	M66005-0001FP	
7105	4822 130 60511	BC847B	
7106	3139 110 53200	M30625MG - 'MC90S53201'	
7107	4822 130 60511	BC847B	
7108	4822 130 60511	BC847B	
7109	9322 145 26668	M24C02-WMN6	
7110	4822 130 60511	BC847B	
7111	4822 130 60511	BC847B	
7112	4822 130 60511	BC847B	

Note : Only the parts mentioned in this list are normal service spare parts.


ECO6 AS non Cenelec

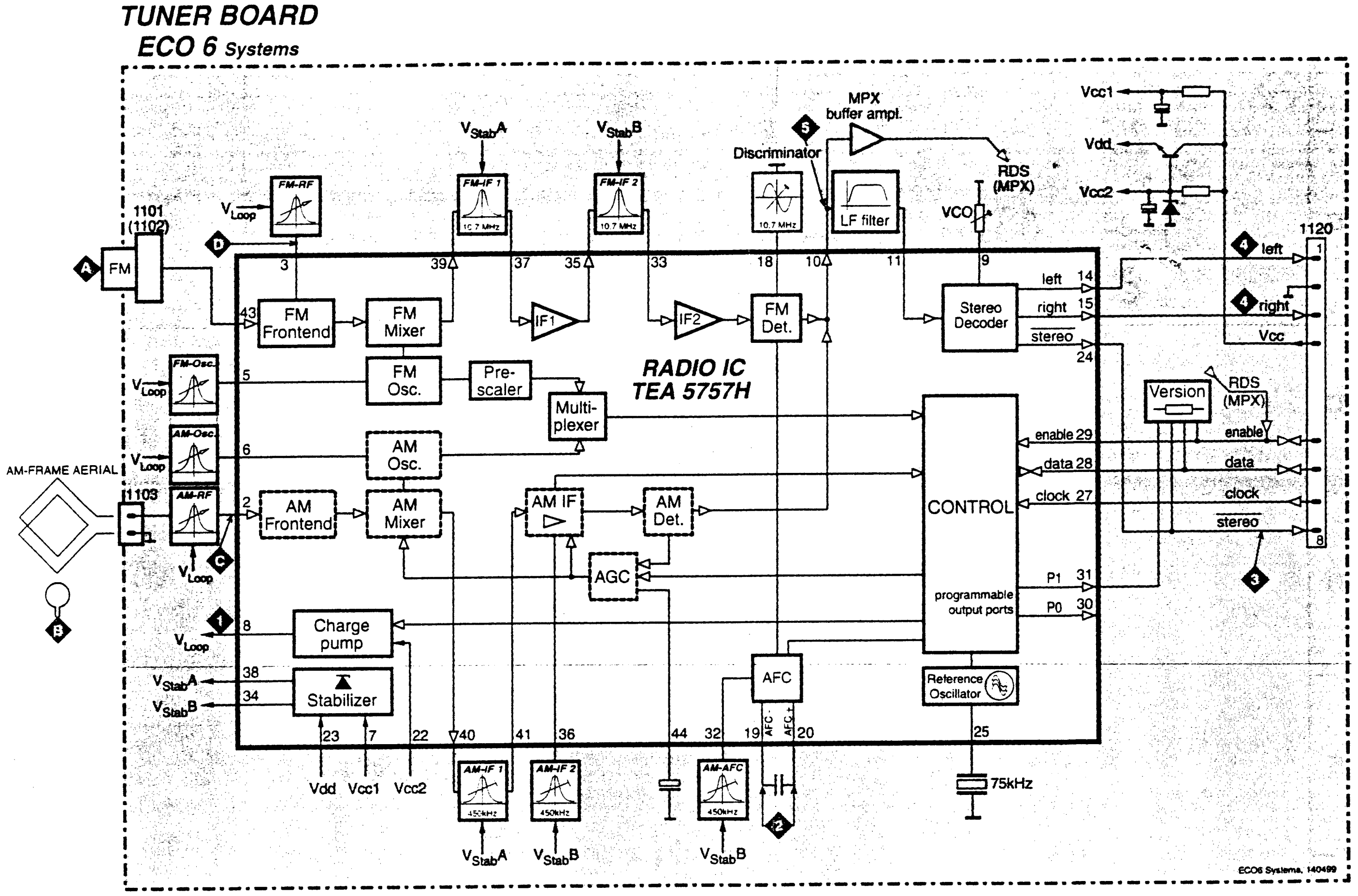
ECO6 Tuner Board

version: ***SYSTEMS non-CENELEC***

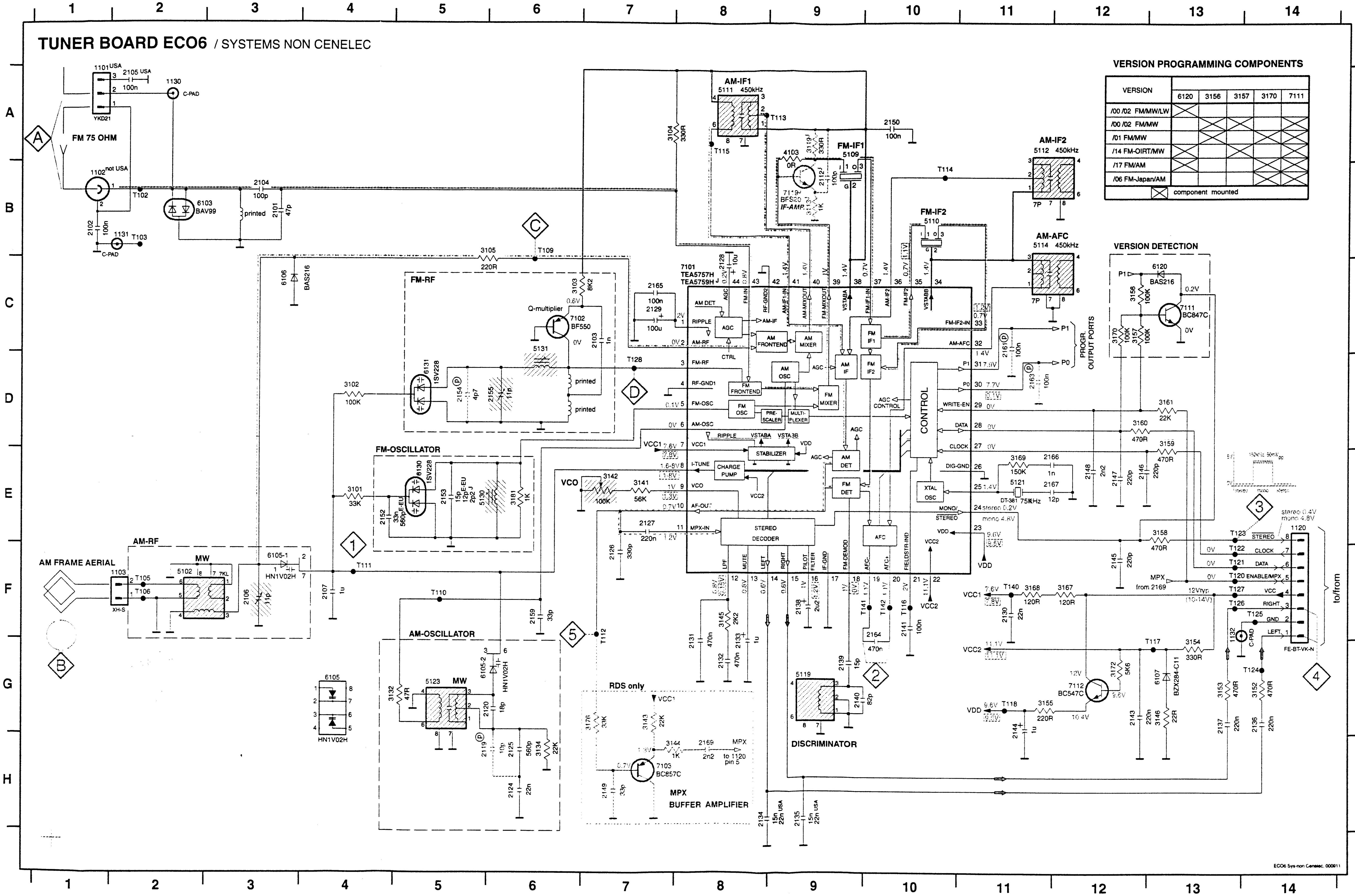
TABLE OF CONTENTS

Blockdiagram 7A-1
Schematic Diagram..7A-2
Component Layout...7A-3
Adjustment table 7A-3
Electrical Partslist...7A-4

BLOCK DIAGRAM


TUNER BOARD
ECO 6 Systems
RADIO IC
TEA 5757H
FM-RF
FM-IF 1
FM-IF 2
10.7 MHz
Discriminator
MPX
buffer ampl.
LF filter
VCO
RDS
(MPX)
Vcc1
Vdd
Vcc2
1101
(1102)
1103
1120
FM
FM
Frontend
FM
Mixer
IF1
IF2
FM
Det.
FM
Osc.
Pre-
scaler
Multi-
plexer
AM
Osc.
AM
Frontend
AM
Mixer
AM IF
AM
Det.
AGC
Stereo
Decoder
CONTROL
programmable
output ports
Version
Charge
pump
Stabilizer
AFC
Reference
Oscillator
75kHz
FM-Osc.
AM-Osc.
AM-RF
AM-IF 1
AM-IF 2
AM-AFC
450kHz
AM-FRAME AERIAL
VLoop
VStabA
VStabB
Vdd
Vcc1
Vcc2
left
right
stereo
enable
data
clock
P1
P0
Vcc
A
B
C
D
1
2
3
4
5
3
39
37
35
33
18
10
11
9
14
15
24
29
28
27
31
30
25
43
5
6
2
8
38
34
23
7
22
40
41
36
44
32
19
20
AFC-
AFC+
1
8
ECO6 Systems, 140499

TUNER BOARD ECO6 / SYSTEMS NON CENELEC


1101 USA
2105 USA
100n
1130
C-PAD
YKD21
FM 75 OHM
1102 not USA
T102
2104
100p
6103
BAV99
printed
2101
47p
2102
100n
1131
T103
C-PAD
3104
330R
AM-IF1
5111 450kHz
T113
T115
4103
0R
3119
330R
2112
100p
FM-IF1
5109
7119
BF520
IF-AMP.
1K
2150
100n
T114
AM-IF2
5112 450kHz
7P
FM-IF2
5110
AM-AFC
5114 450kHz
7P
VERSION DETECTION
P1
6120
BAS216
3156
100K
7111
BC847C
3170
100K
3157
100K
0.2V
0V
3105
220R
T109
6106
BAS216
FM-RF
3103
8K2
0.6V
Q-multiplier
7102
BF550
2103
1n
0V
5131
6131
1SV228
2154
4p7
2155
11p
printed
printed
3102
100K
T128
7101
TEA5757H
TEA5759H
2128
10u
2165
100n
2129
100u
AM DET
RIPPLE
AGC
AM-IF
AM FRONTEND
AM MIXER
AM OSC
AM IF
FM IF1
FM IF2
FM FRONTEND
FM MIXER
FM OSC
PRE-SCALER
MULTI-PLEXER
CTRL
AGC
CONTROL
AGC CONTROL
RIPPLE
VSTABA
VSTAB
VDD
STABILIZER
CHARGE PUMP
AM DET
FM DET
XTAL OSC
STEREO DECODER
AFC
AM-RF
FM-RF
RF-GND1
FM-OSC
AM-OSC
VCC1
I-TUNE
VCO
AF-OUT
MPX-IN
FM-IF2-IN
AM-AFC
P1
P0
WRITE-EN
DATA
CLOCK
DIG-GND
MONO/STEREO
VDD
VCC2
LPF
MUTE
LEFT
RIGHT
PILOT FILTER
IF-GND
FM-DEMOD
AFC-
AFC+
FIELDSTR-IND
2161
100n
2163
100n
PROGR. OUTPUT PORTS
P0
3161
22K
3160
470R
3159
470R
3169
150K
2166
1n
5121
DT-381 75kHz
2167
12p
2148
2n2
2147
220p
2146
220p
FM-OSCILLATOR
6130
1SV228
2153
15p E-EU
12p
2p2 J
5130
3181
1K
3101
33K
2152
33n
560p E-EU
VCO
3142
100K
3141
56K
2127
220n
2126
330p
AM-RF
AM FRAME AERIAL
1103
T105
T106
XH-S
MW
5102
6105-1
HN1V02H
T111
2106
11p
2107
1u
2159
33p
T110
AM-OSCILLATOR
3132
47R
5123
MW
6105-2
HN1V02H
2120
18p
2119
10p
2125
560p
3134
22K
2124
22n
6105
HN1V02H
T112
RDS only
VCC1
3176
33K
3143
22K
3144
1K
2169
2n2
MPX
to 1120 pin 5
7103
BC857C
2149
33p
MPX
BUFFER AMPLIFIER
2131
470n
2132
470n
3145
2K2
2133
1u
2138
2u2
T141
T142
T116
2141
100n
2164
470n
2139
15p
2140
82p
5119
DISCRIMINATOR
2134
15n
22n USA
2135
15n
22n USA
VCC2
VDD
2145
220p
3158
470R
MPX
from 2169
T123
STEREO
T122
CLOCK
T121
DATA
T120
ENABLE/MPX
T127
VCC
T126
RIGHT
T125
GND
LEFT
1120
FE-BT-VK-N
to/from
VCC1
T140
3168
120R
3167
120R
2130
22n
12V typ.
(10-14V)
VCC2
T117
3154
330R
1132
C-PAD
T124
7112
BC547C
3172
5K6
6107
BZX284-C11
3146
22R
2143
220n
VDD
T118
3155
220R
2144
1u
3153
470R
3152
470R
2137
220n
2136
220n
stereo 0.4V
mono 4.8V
ECO6 Sys-non Cenelec 000911

VERSION PROGRAMMING COMPONENTS

VERSION	6120	3156	3157	3170	7111
/00 /02 FM/MW/LW	☒				
/00 /02 FM/MW		☒	☒		☒
/01 FM/MW		☒		☒	☒
/14 FM-OIRT/MW	☒		☒		☒
/17 FM/AM	☒			☒	☒
/06 FM-Japan/AM				☒	☒

☒ component mounted

LEGEND

Ⓟ...for provision only
USA ... for USA version only
E-EU ... for East European version only
J ... for Japanese version only

EVM

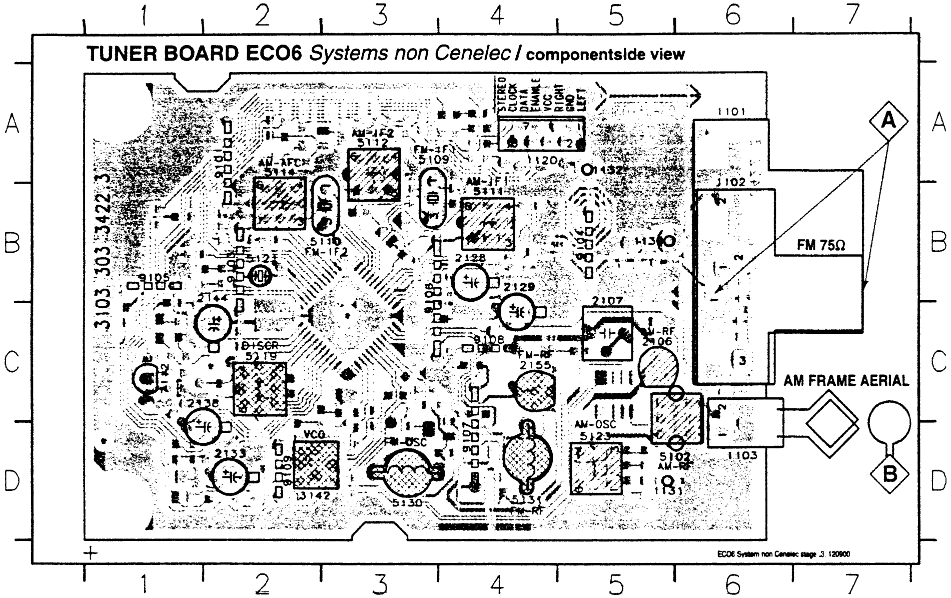
...V FM mode stereo
...V MW mode
...V LW mode
voltages measured while set is tuned to a strong transmitter

Signal path

- FM
- AM
- MPX (Audio Frequency)
- AF - left/right

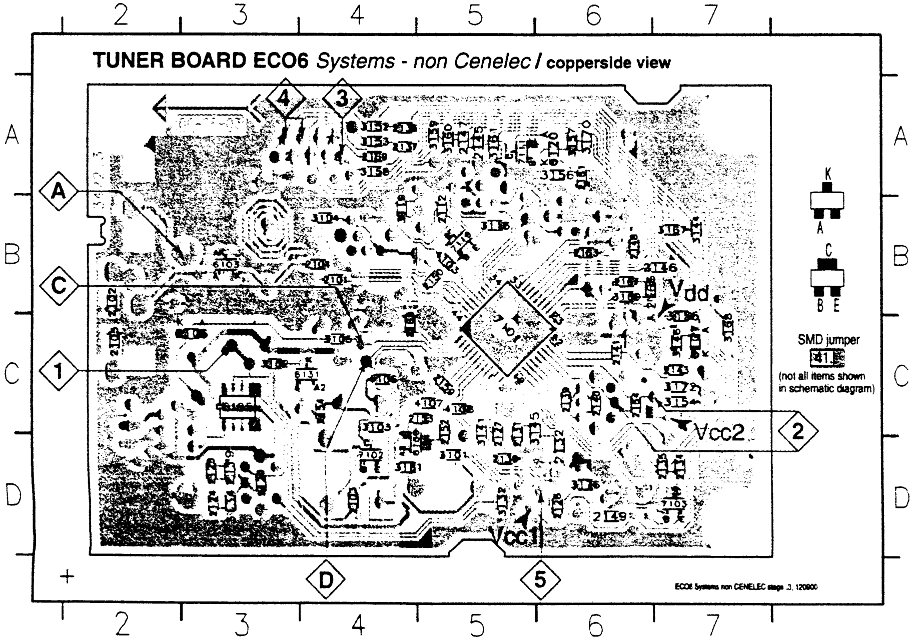
1101	A1
1102	B1
1103	F2
1120	E14
1130	A2
1131	B2
1132	G13
2101	B3
2102	B1
2103	C7
2104	B3
2105	A2
2106	F3
2107	F4
2119	H6
2120	G6
2124	H6
2125	H6
2126	F7
2127	E7
2128	C8
2129	C7
2130	F11
2131	G8
2132	G8
2133	G8
2134	H8
2135	H9
2136	G14
2137	G13
2138	F9
2139	G9
2140	G9
2141	F10
2143	G12
2144	G11
2145	F12
2146	E12
2147	E12
2148	E12
2149	H7
2150	A10
2152	E4
2153	E5
2154	D5
2155	D5
2159	F6
2161	C11
2163	D11
2164	F10
2165	C7
2166	E11
2167	E11
2169	H8
3101	E4
3102	D4
3103	C6
3104	A7
3105	B6
3132	G5
3134	H6
3141	E7
3142	E7
3143	G7
3144	H7
3145	F8
3146	G13
3152	G14
3153	G13
3154	G13
3155	G11
3156	C12
3157	C12
3158	E13
3159	D13
3160	D12
3161	D13
3167	F12
3168	F11
3169	E11
3170	C12
3172	G12
3176	G7
3181	E6
5102	F2
5109	B9
5110	B10
5111	A8
5112	A11
5114	B11
5119	G9
5121	E11
5123	G5
5130	E5
5131	C6
6103	B2
6105-1	F3
6105-2	G5
6106	C3
6107	G13
6120	C13
6130	E5
6131	D5
7101	C8
7102	C6
7103	H7
7111	C13
7112	G12
T102	B2
T103	B2
T105	F2
T106	F2
T109	B6
T110	F5
T111	F4
T112	F7
T113	A8
T114	B10
T115	A8
T116	F10
T117	G13
T118	G11
T120	F13
T121	F13
T122	F13
T123	E13
T124	G14
T125	F14
T126	F13
T127	F13
T128	D7
T140	F11
T141	F10
T142	F10

1101	A6	1120	A4	1132	A5	2128	C4	2138	C2	3142	D2	5110	B3	5114	A2	5123	D5	7112	C1	9104	B5	9107	D4
1102	B6	1130	B5	2106	C5	2129	B4	2144	B2	5102	D6	5111	B4	5119	C2	5130	D3	9101	A2	9105	B1	9108	C4
1103	D6	1131	D5	2107	B5	2133	D2	2155	C4	5109	A3	5112	A3	5121	B2	5131	D4	9103	B2	9106	B3	9109	D2


TUNER BOARD ECO6 *Systems non Cenelec /* **componentside view**

1
2
3
4
5
6
7
A
B
C
D
A
B
FM 75Ω
AM FRAME AERIAL
1101
1102
1103
STEREO
CLOCK
DATA
ENABLE
VCC
RIGHT
GND
LEFT
AM-IF2
5112
AM-AFC
5114
FM-IF1
5109
AM-IF1
5111
5110
FM-IF2
2128
2129
2107
2144
DISCR
5119
2138
2133
VCO
3142
FM-OSC
5130
AM-OSC
5123
5102
AM-RF
FM-RF
5131
2155
2106
3103 303 3422
ECO6 System non Cenelec stage .3. 120900

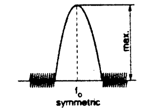
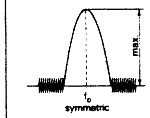
2101	B4	2119	D3	2130	D5	2137	A4	2146	B7	2153	C5	2165	C4	3103	C4	3134	D3	3152	A4	3158	A4	3169	B6	4106	C4	6107	C7	7103	D7
2102	B1	2120	D3	2131	C5	2139	C6	2147	A5	2154	C4	2166	B6	3104	B4	3141	C5	3153	A4	3159	A5	3170	A6	4107	C5	6120	A6	7111	A5
2103	D4	2124	D3	2132	D6	2140	C6	2148	B6	2159	C5	2167	B6	3105	C4	3143	D6	3154	C7	3160	A5	3172	C7	4108	C5	6130	D4	7119	B5
2104	B4	2125	D3	2134	D7	2141	C6	2149	D6	2161	A6	2169	A4	3113	B5	3144	B7	3155	C7	3161	A5	3176	D6	6103	B3	6131	C4		
2105	C1	2126	D6	2135	D7	2143	C7	2150	B5	2163	B6	3101	D5	3119	B5	3145	C5	3156	A6	3167	B7	3181	D4	6105	C3	7101	C5		
2112	B5	2127	C5	2136	A4	2145	A5	2152	C5	2164	C6	3102	C3	3132	D5	3146	C7	3157	A6	3168	C7	4103	B5	6106	C3	7102	D4		


TUNER BOARD ECO6 *Systems - non Cenelec /* **copperside view**

2
3
4
5
6
7
A
B
C
D
A
C
1
2
3
4
5
D
Vdd
Vcc2
Vcc1
K
A
C
B E
SMD jumper
41
(not all items shown in schematic diagram)
ECO6 Systems non CENELEC stage .3. 120900

These assembly drawings show a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

TUNER ADJUSTMENT TABLE (ECO6 FM/MW- and FM/MW/LW - versions with AM-frame aerial)

Waverange	Input frequency	Input	Tuned to	Adjust	Output	Scope/Voltmeter
VARICAP ALIGNMENT						
FM 87.5 - 108MHz (65.81 - 74, 87.5 - 108MHz)			108MHz	5130	◇1	8V ±0.2V
			87.5MHz (65.81MHz)	check		4.3V ±0.5V (1.2V ±0.5V)
MW FM/AM-version, 10kHz grid 530 - 1700kHz			1700kHz	5123		8V ±0.2V
			530kHz	check		1.1V ±0.4V
FM/MW-version, 9kHz grid 531 - 1602kHz			1602kHz	5123		6.9V ±0.2V
			531kHz	check		1.1V ±0.4V
LW 153 - 279kHz			279kHz	5122		8V ±0.2V
			153kHz	check		1.1V ±0.4V
MW FM/MW/LW- version, 9kHz grid 531 - 1602kHz			1602kHz	5123		8V ±0.2V
			531kHz	check		1.1V ±0.4V
FM IF						
FM	10.7MHz, 45mV continuous wave	◇D	IC 7101 21 shortcircuit to block AFC 2141	5119	◇2	0 ± 3 mV DC
FM RF						
FM 87.5 - 108MHz (65.81 - 74, 87.5 - 108MHz)	108MHz	◇A mod=1kHz Δf=±22.5kHz	108MHz	2155	◇4	MAX ↕
	87.5MHz (65.81MHz)		87.5MHz (65.81MHz)	5131		
VCO						
FM	98MHz, 1mV continuous wave	◇A	98MHz	3142	◇3	152kHz ±1kHz 1)
AM IF						
MW	450kHz connect pin 6 of IC 7101 (AM Osc.) with 3.3kΩ to Vcc	◇C Δf=±10kHz V_{RF} = 0.5mV (as low as possible)	IC 7101 36 100nF 220R	5111	◇5	
			IC 7101 40 100nF 220R see remark 2)	5112		
AM AFC **MW**		◇C continuous wave V_{RF} = 2mV		5114	◇2	0 ± 2 mV DC
AM RF 3)						
MW 4) FM/MW/LW- and FM/MW-version (9kHz grid) 531 - 1602kHz	1494kHz	◇B Δf = ±30kHz V_{RF} as low as possible	1494kHz	2106	◇5	↕ 
	558kHz		558kHz	5102		
LW	198kHz		198kHz	5103		
MW FM/AM-version, 10kHz grid 530 - 1700kHz	1500kHz		1500kHz	2106		↕
	560kHz		560kHz	5102		

ECO6. Sys + PA with frame aerial. 070798

Use Service Testprogram. By selecting the TUNER TEST test frequencies will be stored as preset frequencies automatically.

1) If sensitivity of frequency counter is too low adjust to max. channel separation (input signal: stereo left 90% + 9%, adjust output on right channel to minimum)

2) RC network serves for damping the IF-filter while adjusting the other one.

3) For AM RF adjustments the original frame antenna has to be used !

4) MW has to be aligned before LW.

↕ Repeat

Electrical Partslist ***ECO6*** *SYSTEMS NON-CENELEC*

MISCELLANEOUS

1101	2422 015 19376	SOCKET 2P CLICKFIT	USA only
1102	4822 267 10283	SOCKET COAX, IEC 75Ω	not USA
1103	4822 265 31184	JST CONNECTOR 2 POLE	
1120	4822 265 11515	FFC SOCKET, 8P	

CAPACITORS

2101©	4822 126 13692	47pF	1%	63V	
2102©	4822 126 13838	100nF	10%	50V	not USA
2103©	5322 122 31647	1nF	10%	63V	
2104©	5322 122 32531	100pF	5%	50V	
2105©	4822 126 13838	100nF	10%	50V	USA only
2106	2020 800 00191	3-11pF TRIMCAP.,N450			
2107	4822 121 51319	1µF	20%	50V	
2120©	4822 126 13689	18pF	1%	63V	
2124©	5322 122 32654	22nF	10%	63V	
2125©	2020 552 96199	560pF	1%	50V	
2126©	5322 122 31863	330pF	5%	50V	
2127©	4822 126 14076	220nF	20%	25V	
2128	4822 124 40248	10µF	20%	63V	
2129	4822 124 41584	100µF	20%	10V	
2130©	5322 122 32654	22nF	10%	63V	
2131©	4822 126 13482	470nF	20%	16V	
2132©	4822 126 13482	470nF	20%	16V	
2133	4822 124 21913	1µF	20%	63V	
2134©	4822 126 13188	15nF	5%	63V	not USA
2134©	5322 122 32654	22nF	10%	63V	USA only
2135©	4822 126 13188	15nF	5%	63V	not USA
2135©	5322 122 32654	22nF	10%	63V	USA only
2136©	4822 126 14076	220nF	20%	25V	
2137©	4822 126 14076	220nF	20%	25V	
2138	4822 124 22652	2,2µF	20%	50V	
2139©	4822 126 14236	15pF	5%	50V	
2140©	4822 126 13695	82pF	1%	63V	
2141©	4822 126 13838	100nF	10%	50V	
2143©	4822 126 14076	220nF	20%	25V	
2144	4822 124 21913	1µF	20%	63V	
2145©	4822 122 33575	220pF	5%	50V	
2146©	4822 122 33575	220pF	5%	50V	
2147©	4822 122 33575	220pF	5%	50V	
2148©	4822 122 33127	2,2nF	10%	63V	
2149©	5322 122 32659	33pF	5%	50V	RDS only
2150©	4822 126 13838	100nF	10%	50V	
2152©	4822 126 12105	33nF	5%	63V	not for East Europe
2152©	5322 116 80853	560pF	5%	63V	for East Europe only
2153©	4822 126 13486	15pF	2%	63V	not for East Europe
2153©	4822 122 33926	12pF	2%	50V	for East Europe only
2155	2020 800 00191	3-11pF TRIMCAP.,N450			
2159©	5322 122 32659	33pF	5%	50V	
2164©	4822 126 13482	470nF	20%	16V	
2165©	4822 126 13838	100nF	10%	50V	
2166©	5322 122 31647	1nF	10%	63V	
2167©	4822 122 33926	12pF	5%	50V	
2169©	4822 122 33127	2,2nF	10%	63V	RDS only

RESISTORS

3101©	4822 051 20333	33kΩ	5%	0,1W	
3102©	4822 117 10837	100kΩ	1%	0,1W	
3103©	4822 051 20822	8,2kΩ	5%	0,1W	
3104©	4822 117 13577	330Ω	1%	0,1W	
3105©	4822 117 11503	220Ω	5%	0,1W	
3132©	4822 051 20479	47Ω	5%	0,1W	
3134©	4822 051 20223	22kΩ	5%	0,1W	
3141©	4822 117 11148	56kΩ	1%	0,1W	
3142	4822 100 12159	TRIMPOT. 100kΩ			
3143©	4822 051 20223	22kΩ	5%	0,1W	RDS only
3144©	4822 051 10102	1kΩ	2%	0,25W	RDS only
3145©	4822 117 11449	2,2kΩ	1%	0,1W	
3146©	4822 051 20229	22Ω	5%	0,1W	
3152©	4822 051 20471	470Ω	5%	0,1W	
3153©	4822 051 20471	470Ω	5%	0,1W	
3154©	4822 117 13577	330Ω	1%	0,1W	
3155©	4822 117 11503	220Ω	5%	0,1W	
3156©	4822 117 10837	100kΩ	1%	0,1W	
3157©	4822 117 10837	100kΩ	1%	0,1W	
3158©	4822 051 20471	470Ω	5%	0,1W	
3159©	4822 051 20471	470Ω	5%	0,1W	
3160©	4822 051 20471	470Ω	5%	0,1W	
3161©	4822 051 20223	22kΩ	5%	0,1W	
3167©	4822 051 20121	120Ω	5%	0,1W	
3168©	4822 051 20121	120Ω	5%	0,1W	
3169©	4822 051 20154	150kΩ	5%	0,1W	
3170©	4822 117 10837	100kΩ	1%	0,1W	
3172©	4822 051 20562	5,6kΩ	5%	0,1W	
3176©	4822 051 20333	33kΩ	5%	0,1W	RDS only
3181©	4822 051 10102	1kΩ	2%	0,25W	
4103©	4822 051 20008	CHIP JUMPER 0805			
4106©	4822 051 20008	CHIP JUMPER 0805			
4107©	4822 051 20008	CHIP JUMPER 0805			
4108©	4822 051 20008	CHIP JUMPER 0805			

COILS

5102	4822 157 71634	RF-COIL MW
5109	4822 242 70665	FM-IF FILTER 10,7MHz
5110	4822 242 70665	FM-IF FILTER 10,7MHz
5111	2422 549 44023	AM-IF FILTER 450kHz
5112	4822 157 70302	AM-IF FILTER 450kHz
5114	4822 157 70302	AM-IF FILTER 450kHz
5119	4822 157 11443	DISCRIMINATOR COIL
5121	4822 242 10261	QUARTZ 75kHz
5123	2422 549 44108	RF-COIL, AM-OSCILLATOR
5130	4822 157 11843	RF COIL 1,5 TURNS
5131	4822 157 11843	RF COIL 1,5 TURNS

DIODES

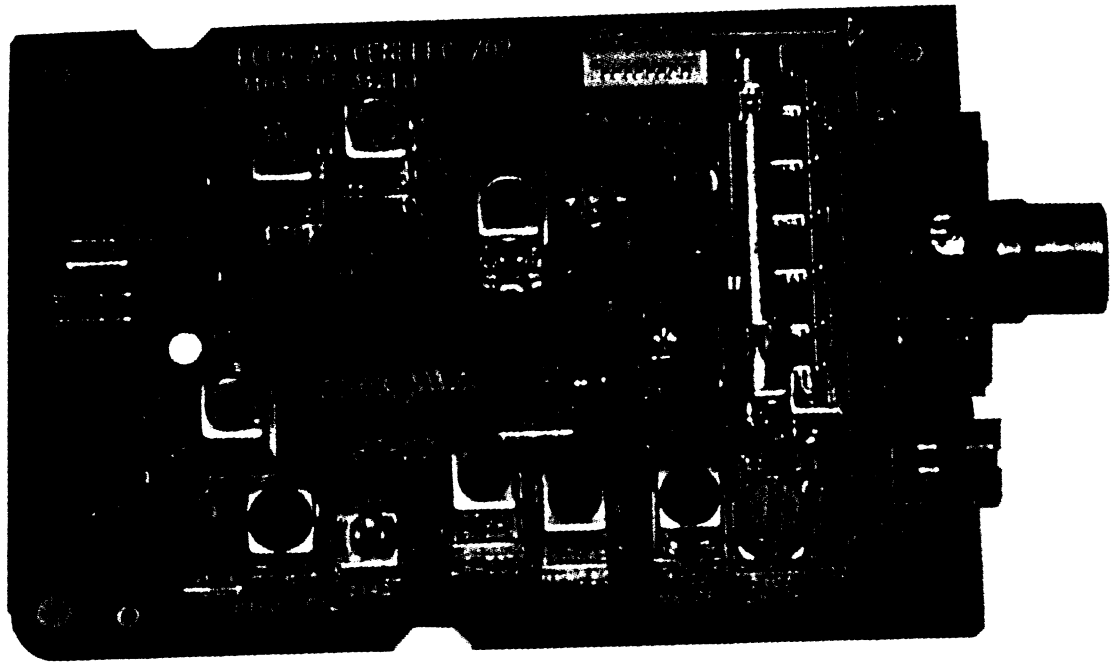
6103©	5322 130 34337	BAV99
6105©	4822 130 83075	HN1V02H
6106©	4822 130 83757	BAS216
6107©	9340 386 90115	BZX284-C11
6120©	4822 130 83757	BAS216
6130©	4822 130 82833	1SV228
6131©	4822 130 82833	1SV228

TRANSISTORS

7102	4822 130 42131	BF550	
7103©	5322 130 42756	BC857C	RDS only
7111©	5322 130 42755	BC847C	
7112	4822 130 44503	BC547C	

INTEGRATED CIRCUITS

7101©	9351 740 80557	TEA5757H/V1, RADIO IC



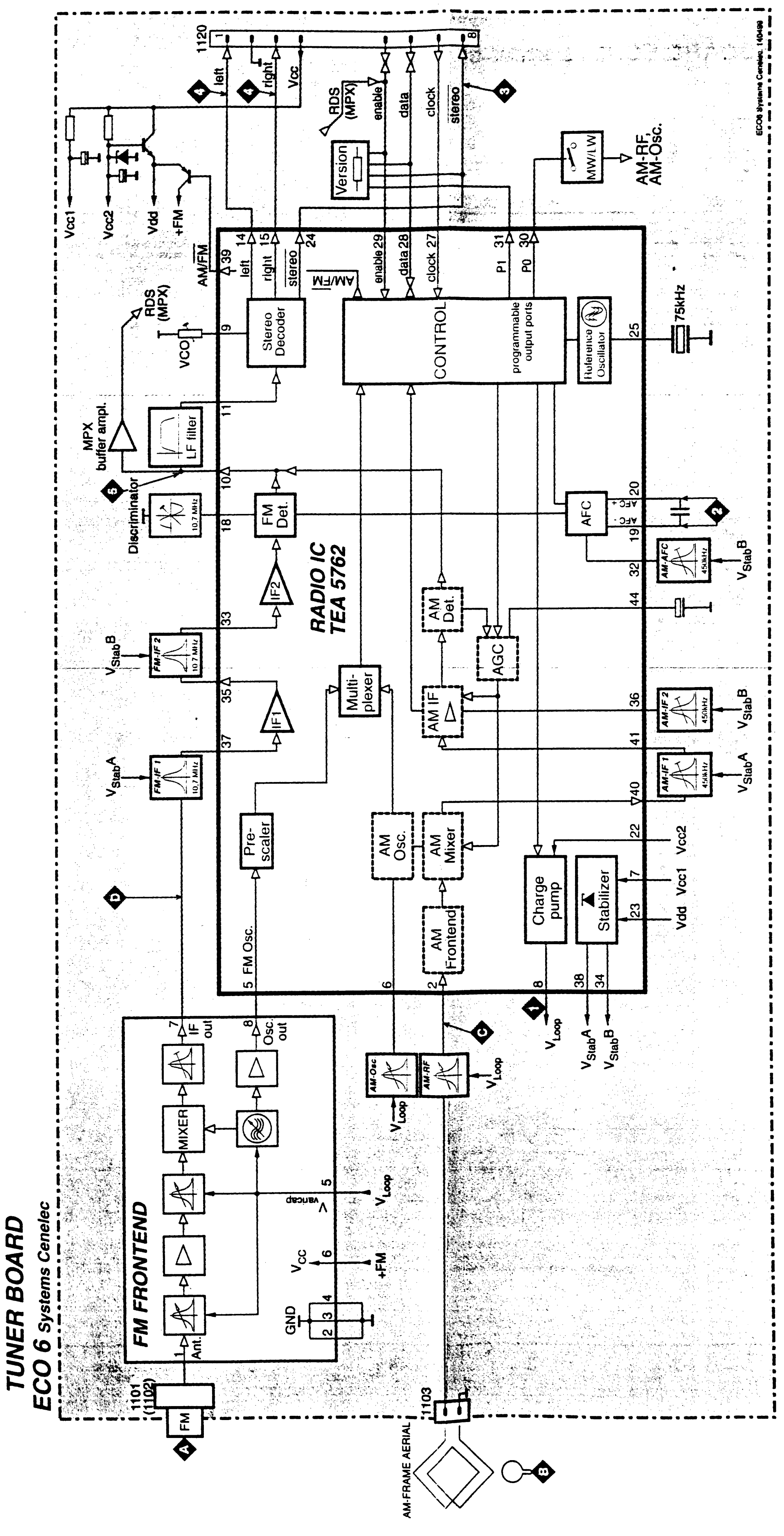
ECO6 Tuner Board

version: ***SYSTEMS CENELEC***

TABLE OF CONTENTS

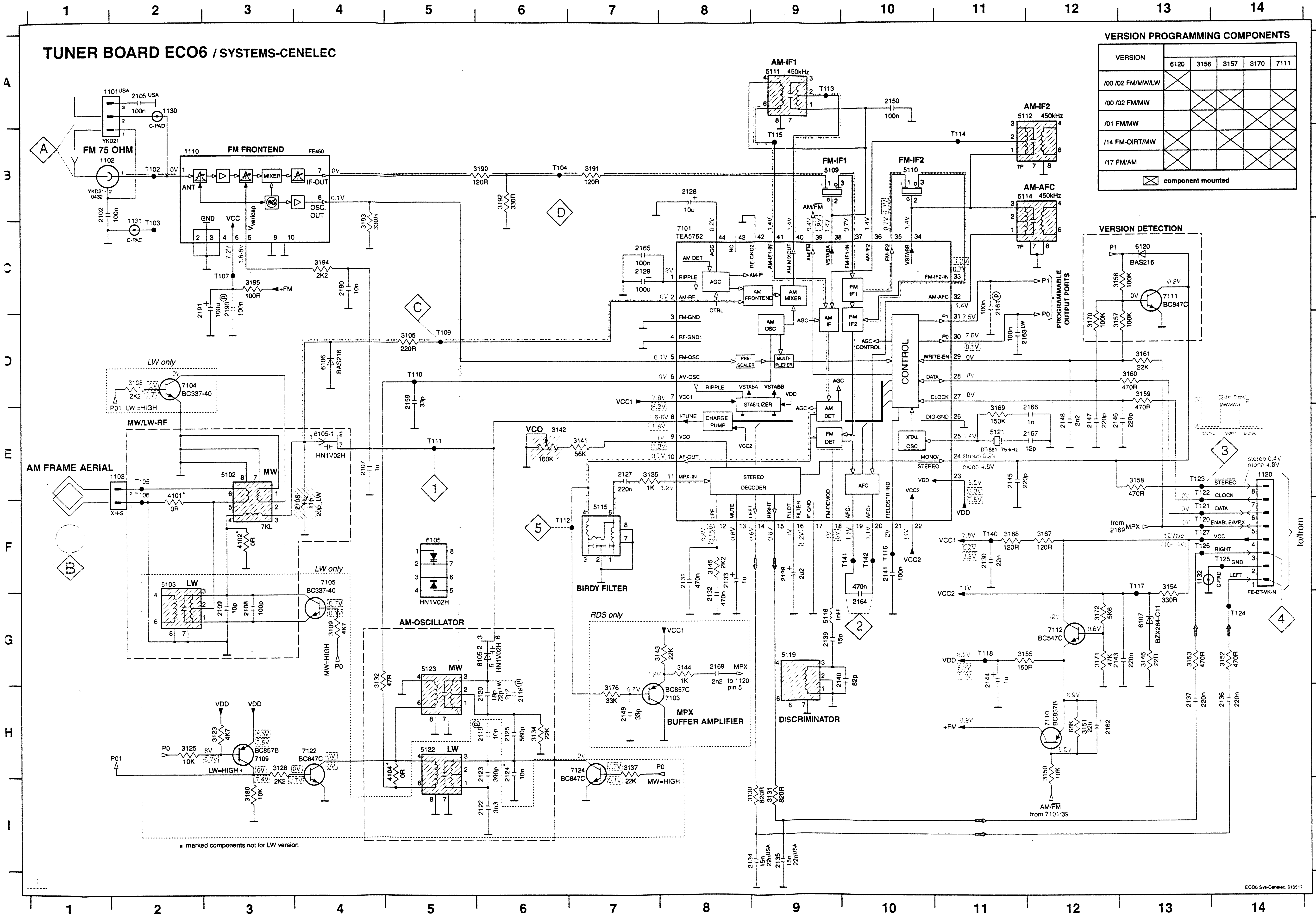
Blockdiagram 7B-1
Schematic Diagram..7B-2
Component Layout...7B-3
Adjustment table 7B-3
Electrical Partslist...7B-4

BLOCK DIAGRAM



TUNER BOARD
ECO 6 Systems Cenelec
FM FRONTEND
MIXER
Ant.
IF out
Osc out
GND
Vcc
+FM
RADIO IC
TEA 5762
Stereo Decoder
CONTROL
programmable output ports
Reference Oscillator
75kHz
LF filter
MPX buffer ampl.
RDS (MPX)
VCO
Discriminator
FM Det.
IF1
IF2
Multi-plexer
Pre-scaler
AM Osc.
AM Mixer
AM Frontend
AM IF
AM Det.
AGC
AFC
Charge pump
Stabilizer
Version
MW/LW
AM-RF, AM-Osc.
left
right
stereo
enable
data
clock
Vcc1
Vcc2
Vdd
FM
AM-FRAME AERIAL
1101
1102
1103
1120

TUNER BOARD ECO6 / SYSTEMS-CENELEC


FM 75 OHM
FM FRONTEND
FE450
ANT
MIXER
IF-OUT
OSC. OUT
GND
VCC
Vvaricap
AM-IF1
5111 450kHz
AM-IF2
5112 450kHz
AM-AFC
5114 450kHz
FM-IF1
5109
FM-IF2
5110
7101
TEA5762
AGC
AM FRONTEND
AM MIXER
AM OSC
AM IF
FM IF1
FM IF2
PRE-SCALER
MULTI-PLEXER
STABILIZER
CHARGE PUMP
AM DET
FM DET
XTAL OSC
CONTROL
STEREO DECODER
AFC
PROGRAMMABLE OUTPUT PORTS
VERSION DETECTION
LW only
MW/LW-RF
AM FRAME AERIAL
MW
LW
HN1V02H
AM-OSCILLATOR
VCO
BIRDY FILTER
RDS only
MPX BUFFER AMPLIFIER
DISCRIMINATOR
MW=HIGH
LW=HIGH
to/from
FE-BT-VK-N
STEREO
CLOCK
DATA
ENABLE/MPX
VCC
RIGHT
GND
LEFT
▪ marked components not for LW version
ECO6 Sys-Cenelec 010517

VERSION PROGRAMMING COMPONENTS

VERSION	6120	3156	3157	3170	7111
/00 /02 FM/MW/LW	☒				
/00 /02 FM/MW		☒	☒		☒
/01 FM/MW		☒		☒	☒
/14 FM-OIRT/MW	☒		☒		☒
/17 FM/AM	☒			☒	☒

☒ component mounted

1101	A2
1102	B1
1103	E2
1110	B2
1120	E14
1130	A2
1131	C2
1132	F13
2102	B1
2105	A2
2106	E3
2107	E4
2108	G3
2109	G3
2118	H6
2119	H6
2120	H6
2122	I6
2123	H6
2124	H6
2125	H6
2127	E7
2128	B8
2129	C7
2130	F11
2131	F8
2132	F8
2133	F8
2134	I8
2135	I9
2136	H14
2137	H13
2138	F9
2139	G9
2140	G9
2141	F10
2143	G12
2144	G11
2145	E11
2146	E12
2147	E12
2148	E12
2149	H7
2150	A10
2159	D5
2161	C11
2162	H12
2163	D11
2164	G10
2165	C7
2166	E11
2167	E11
2169	G8
2180	C4
2190	C3
2191	C3
3105	D5
3108	D2
3109	G4
3123	H3
3125	H2
3128	H3
3130	I9
3131	I9
3132	G4
3134	H6
3135	E7
3137	H7
3141	E7
3142	E6
3143	G7
3144	G8
3145	F8
3146	G13
3150	H12
3151	H12
3152	G14
3153	G13
3154	F13
3155	G12
3156	C12
3157	D12
3158	E13
3159	D13
3160	D13
3161	D13
3167	F12
3168	F11
3169	E11
3170	D12
3171	G12
3172	G12
3176	H7
3180	I3
3190	B6
3191	B7
3192	B6
3193	B4
3194	C4
3195	C3
4101	E2
4102	F3
4104	H5
5102	E3
5103	F2
5109	B9
5110	B10
5111	A9
5112	A11
5114	B11
5115	E7
5118	G9
5119	G9
5121	E11
5122	H5
5123	G5
6105-1	E4
6105-2	G6
6106	D4
6107	G13
6120	C13
7101	C8
7103	H8
7104	D2
7105	F4
7109	H3
7110	H12
7111	C13
7112	G12
7122	H4
7124	H7
T102	B2
T103	B2
T104	B6
T105	E2
T106	E2
T107	C3
T109	D5
T110	D5
T111	E5
T112	F7
T113	A9
T114	B11
T116	F10
T117	F13
T118	G11
T120	F13
T121	F13
T122	E13
T123	E13
T124	G14
T125	F14
T126	F13
T127	F13
T140	F11
T141	F10
T142	F10

LEGEND

* ... only assembled in FM/AM-version
Ⓟ ...for provision only
USA ... for USA version only
LW ... for LW version only

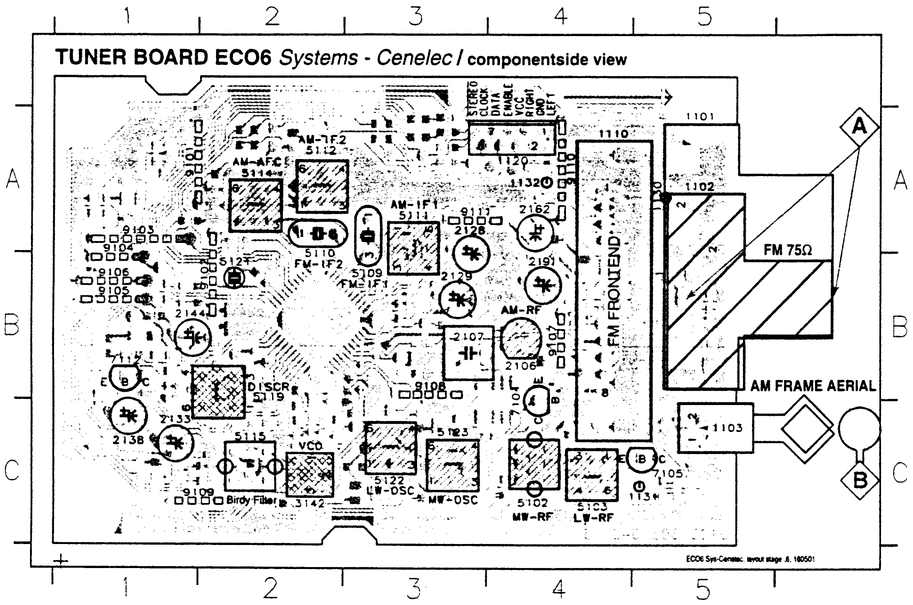
SMD jumper
41xx
0R

Ⓥ EVM

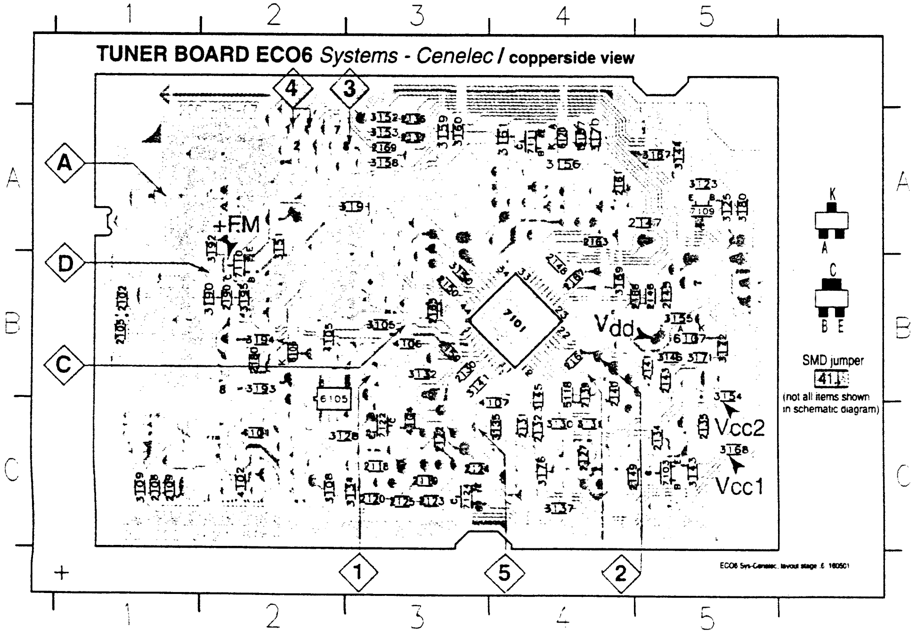
...V FM mode stereo
...V MW mode
...V LW mode
voltages measured while set is tuned to a strong transmitter

Signal path
— FM
---- AM
- - - MPX (Audio Frequency)
⇨ AF - left/right

1101 B5	1110 B4	1131 C5	2107 B3	2133 C1	2162 A4	5102 C4	5110 A2	5114 A2	5121 B2	7104 C4	9101 A2	9104 B1	9107 B4	9110 A4
1102 B5	1120 A4	1132 A4	2128 A3	2138 B1	2191 B4	5103 C4	5111 A3	5115 C2	5122 C3	7105 C5	9102 B2	9105 B1	9108 B3	9111 A3
1103 C5	1130 A5	2106 B4	2129 B3	2144 B1	3142 C2	5109 B3	5112 A2	5119 B2	5123 C3	7112 B1	9103 A1	9106 B1	9109 C2	


TUNER BOARD ECO6 *Systems - Cenelec* / componentside view
1
2
3
4
5
A
B
C
STEREO
CLOCK
DATA
ENABLE
VCC
RIGHT
GND
LEFT
1101
1110
1102
1103
1120
1132
AM-IF2
5112
AM-AFC
5114
AM-IF1
5111
9117
2128
2162
9103
9104
9106
9105
5121
5110
FM-IF2
5109
FM-IF1
2129
2191
AM-RF
2144
FM FRONTEND
FM 75Ω
AM FRAME AERIAL
2107
2106
9107
9108
DISCR
5119
2133
2138
5115
VCO
5123
5122
LW-OSC
MW-OSC
5102
MW-RF
5103
LW-RF
7105
113
9109
Birdy Filter
3142
A
B
E
B
C
ECO6 Sys-Cenelec. layout stage .6. 180501

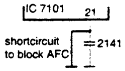
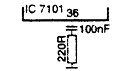
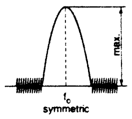
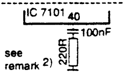
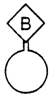
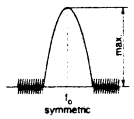
2102 B1	2120 C3	2130 B3	2137 A3	2146 B5	2161 A4	2169 A3	3123 A5	3134 C3	3145 C4	3154 B5	3160 A3	3171 B5	3192 A2	4104 C3	6106 B2	7110 B2
2105 B1	2122 C3	2131 C4	2139 B4	2147 A5	2163 A4	2180 B2	3125 A5	3135 C4	3146 B5	3155 B5	3161 A4	3172 B5	3193 B2	4105 B2	6107 B5	7111 A4
2108 C1	2123 C3	2132 C4	2140 B4	2148 B4	2164 B4	2190 B2	3128 C2	3137 C4	3150 B3	3156 A4	3167 A5	3176 C4	3194 B2	4106 B3	6120 A4	7122 C3
2109 C1	2124 C3	2134 C5	2141 B5	2149 C4	2165 B3	3105 B3	3130 C4	3141 B3	3151 A2	3157 A4	3168 C5	3180 A5	3195 B2	4107 C4	7101 B4	7124 C3
2118 C3	2125 C3	2135 C5	2143 B5	2150 B3	2166 B5	3108 C2	3131 C4	3143 C5	3152 A3	3158 A3	3169 B4	3190 B2	4101 C2	5118 C4	7103 C5	
2119 C3	2127 C4	2136 A3	2145 B5	2159 B3	2167 B4	3109 C1	3132 B3	3144 A5	3153 A3	3159 A3	3170 A4	3191 A3	4102 C2	6105 B2	7109 A5	


TUNER BOARD ECO6 *Systems - Cenelec* / copperside view
1
2
3
4
5
A
B
C
4
3
A
D
C
+FM
7101
Vdd
Vcc2
Vcc1
1
5
2
K
A
C
B E
SMD jumper
4111
(not all items shown in schematic diagram)

ECO6 Sys-Cenelec. layout stage .6. 180501

These assembly drawings show a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

TUNER ADJUSTMENT TABLE (ECO6 Cenelec FM/MW - and FM/MW/LW - versions with AM-frame aerial)

Waverange	Input frequency	Input	Tuned to	Adjust	Output	Scope/Voltmeter
VARICAP ALIGNMENT						
FM 87.5 - 108MHz (50kHz grid)			108MHz	check	1	8V ±1.2V
			87.5MHz	check		1.6V ±0.5V
MW 531 - 1602kHz (9kHz grid)			1602kHz	5123		8V ±0.2V 3-band 6.9V ±0.2V 2-band
			531kHz	check		1.1V ±0.4V
LW 153 - 279kHz (3kHz grid)			279kHz	5122		8V ±0.2V
			153kHz	check		1.1V ±0.4V
FM - IF						
FM	10.7MHz, 45mV continuous wave	D	IC 7101 21 shortcircuit to block AFC 2141	5119	2	0mV ±3mV
FM - VCO						
FM	98MHz, 1mV continuous wave	A	98MHz	3142	3	152kHz ±1kHz [1]
FM RF (channel separation)	Note: The FM-frontend unit has already been adjusted by the factory and needs therefore no further adjustments for service purposes.					
FM	98MHz, 1mV 90% Left + 9% pilot mod=1kHz	A	98MHz	IF coil inside FM frontend 1110	4	right channel min.
AM IF						
MW	450kHz connect pin 6 of IC 7101 (AM Osc.) with 3.3kΩ to Vcc	C Δf = ±10kHz V_{RF} = 0.5mV (as low as possible)	IC 7101 36 100nF 220R	5111	5	max. f_o symmetric
			IC 7101 40 100nF 220R see remark [2]	5112		
AM AFC **MW**		C continuous wave V_{RF} = 2mV		5114	2	0mV ±2mV
AM RF [3]						
MW	1494kHz	B Δf = ±30kHz V_{RF} as low as possible	1494kHz	2106	5	max. f_o symmetric
	558kHz		558kHz	5102		
LW	198kHz		198kHz	5103		

ECO6 Sys Cenelec. 190599

Use Service Testprogram. By selecting the TUNER TEST test frequencies will be stored as preset frequencies automatically.

[1] If sensitivity of frequency counter is too low adjust to max. channel separation (input signal: stereo left 90% + 9%, adjust output on right channel to minimum)

[2] RC network serves for damping the IF-filter while adjusting the other one.

[3] For AM RF adjustments the original frame antenna has to be used!
MW has to be aligned before LW.

↕ Repeat

Electrical Partslist *ECO6* *SYSTEMS-CENELEC*

MISCELLANEOUS

1101	2422 015 19376	SOCKET CLICKFIT 2P	USA only
1102	4822 267 10283	SOCKET COAX, IEC 75Ω	not USA
1103	4822 265 31184	JST CONNECTOR, 2 POLE	
1110	2422 542 90071	FM FRONTEND	
1120	4822 265 11515	FFC SOCKET, 8P	

CAPACITORS

2102©	4822 126 13838	100nF	10%	50V	not USA
2105©	4822 126 13838	100nF	10%	50V	USA only
2106	2020 800 00204	TRIMCAP. 4,2 - 20pF, N750			LW only
2106	2020 800 00191	TRIMCAP. 3 - 11pF, N450			FM/AM only
2107	4822 121 51319	1µF	20%	50V	
2108©	5322 122 32531	100pF	5%	50V	LW only
2109©	5322 122 32448	10pF	5%	50V	LW only
2120©	4822 126 13689	18pF	1%	63V	FM/AM only
2120©	5322 122 32658	22pF	5%	50V	LW only
2122©	4822 122 33891	3,3nF	10%	63V	LW only
2123©	2020 552 93494	390pF	1%	50V	LW only
2124©	4822 122 33177	10nF	20%	50V	FM/AM only
2125©	2020 552 96199	560pF	1%	50V	
2127©	4822 126 14076	220nF	20%	25V	
2128	4822 124 40248	10µF	20%	63V	
2129	4822 124 41584	100µF	20%	10V	
2130©	5322 122 32654	22nF	10%	63V	
2131©	4822 126 13482	470nF	20%	16V	
2132©	4822 126 13482	470nF	20%	16V	
2133	4822 124 21913	1µF	20%	63V	
2134©	3198 017 31530	15nF	10%	50V	not USA
2134©	5322 122 32654	22nF	10%	63V	USA only
2135©	3198 017 31530	15nF	10%	50V	not USA
2135©	3198 017 32230	22nF	10%	25V	USA only
2136©	4822 126 14076	220nF	20%	25V	
2137©	4822 126 14076	220nF	20%	25V	
2138	4822 124 22652	2,2µF	20%	50V	
2139©	4822 126 14236	15pF	5%	50V	
2140©	4822 126 13695	82pF	1%	63V	
2141©	4822 126 13838	100nF	10%	50V	
2143©	4822 126 14076	220nF	20%	25V	
2144	4822 124 21913	1µF	20%	63V	
2145©	4822 122 33575	220pF	5%	50V	
2146©	4822 122 33575	220pF	5%	50V	
2147©	4822 122 33575	220pF	5%	50V	
2148©	4822 122 33127	2,2nF	10%	63V	
2149©	5322 122 32659	33pF	5%	50V	RDS only
2150©	4822 126 13838	100nF	10%	50V	
2159©	5322 122 31151	22µF	20%	50V	
2163©	4822 126 13838	100nF	10%	50V	LW only
2164©	4822 126 13482	470nF	20%	16V	
2165©	4822 126 13838	100nF	10%	50V	
2166©	5322 122 31647	1nF	10%	63V	
2167©	4822 122 33926	12pF	5%	50V	
2169©	4822 122 33127	2,2nF	10%	63V	RDS only
2180©	3198 017 31030	10nF	10%	50V	
2190©	4822 126 13838	100nF	10%	50V	
2191	4822 124 40178	100µF	20%	10V	

RESISTORS

3105©	4822 117 11503	220Ω	5%	0,1W	
3108©	4822 117 11449	2,2kΩ	1%	0,1W	LW only
3109©	4822 051 20472	4,7kΩ	5%	0,1W	LW only
3123©	4822 051 20472	4,7kΩ	5%	0,1W	LW only
3125©	4822 117 10833	10kΩ	1%	0,1W	LW only

RESISTORS

3128©	4822 117 11449	2,2kΩ	1%	0,1W	LW only
3130©	3198 021 38210	820Ω	5%	0,06W	
3131©	3198 021 38210	820Ω	5%	0,06W	
3132©	4822 051 20479	47Ω	5%	0,1W	
3134©	4822 051 20223	22kΩ	5%	0,1W	
3135©	3198 021 31020	1kΩ	5%	0,06W	
3137©	4822 051 20223	22kΩ	5%	0,1W	LW only
3141©	4822 117 11148	56kΩ	1%	0,1W	
3142	4822 100 12159	TRIMPOT. 100kΩ			
3143©	4822 051 20223	22kΩ	5%	0,1W	RDS only
3144©	4822 051 10102	1kΩ	2%	0,25W	RDS only
3145©	4822 117 11449	2,2kΩ	1%	0,1W	
3146©	4822 051 20229	22Ω	5%	0,1W	
3150©	4822 117 10833	10kΩ	1%	0,1W	
3151©	4822 051 20683	68kΩ	5%	0,1W	
3152©	4822 051 20471	470Ω	5%	0,1W	
3153©	4822 051 20471	470Ω	5%	0,1W	
3154©	4822 117 13577	330Ω	1%	0,1W	
3155©	4822 117 10353	150Ω	5%	0,1W	
3156©	4822 117 10837	100kΩ	1%	0,1W	
3157©	4822 117 10837	100kΩ	1%	0,1W	
3158©	4822 051 20471	470Ω	5%	0,1W	
3159©	4822 051 20471	470Ω	5%	0,1W	
3160©	4822 051 20471	470Ω	5%	0,1W	
3161©	4822 051 20223	22kΩ	5%	0,1W	
3167©	4822 051 20121	120Ω	5%	0,1W	
3168©	4822 051 20121	120Ω	5%	0,1W	
3169©	4822 051 20154	150kΩ	5%	0,1W	
3170©	4822 117 10837	100kΩ	1%	0,1W	
3171©	4822 117 10834	47kΩ	1%	0,1W	
3172©	4822 051 20562	5,6kΩ	5%	0,1W	
3176©	4822 051 20333	33kΩ	5%	0,1W	RDS only
3180©	4822 117 10833	10kΩ	1%	0,1W	LW only
3190©	4822 051 20121	120Ω	5%	0,1W	
3191©	4822 051 20121	120Ω	5%	0,1W	
3192©	4822 117 13577	330Ω	1%	0,1W	
3193©	4822 117 13577	330Ω	1%	0,1W	
3194©	4822 117 11449	2,2kΩ	1%	0,1W	
3195©	4822 051 20101	100Ω	5%	0,1W	
4101©	4822 051 20008	CHIP JUMPER 0805			FM/AM only
4102©	4822 051 20008	CHIP JUMPER 0805			FM/AM only
4104©	4822 051 20008	CHIP JUMPER 0805			FM/AM only
4105©	4822 051 20008	CHIP JUMPER 0805			
4106©	4822 051 20008	CHIP JUMPER 0805			
4107©	4822 051 20008	CHIP JUMPER 0805			

COILS

5102	4822 157 71634	RF-COIL MW	
5103	2422 549 44107	RF-COIL LW	LW only
5109	4822 157 71639	FM-IF FILTER 10,7MHz	
5110	4822 242 70665	FM-IF FILTER 10,7MHz	
5111	2422 549 44023	AM-IF FILTER 450kHz	
5112	4822 157 70302	AM-IF FILTER 450kHz	
5114	4822 157 70302	AM-IF FILTER 450kHz	
5115	4822 157 71636	ANTI BIRDY FILTER	
5118©	2422 535 95881	100nH	
5119	4822 157 11443	DISCRIMINATOR COIL	
5121	4822 242 10261	QUARTZ 75kHz	
5122	2422 549 44108	RF-COIL, LW-OSCILLATOR	LW only
5123	2422 549 44108	RF-COIL, MW-OSCILLATOR	

DIODES

6105©	4822 130 83075	HN1V02H
6106©	4822 130 83757	BAS216
6107©	9340 386 90115	BZX284-C11
6120©	4822 130 83757	BAS216

TRANSISTORS

7103©	5322 130 42756	BC857C	RDS only
7104	9322 003 64676	TBC337-40	LW only
7105	9322 003 64676	TBC337-40	LW only
7109©	4822 130 60373	BC856B	LW only
7110©	4822 130 60373	BC856B	
7111©	5322 130 42755	BC847C	
7112	4822 130 44503	BC547C	
7122©	5322 130 42755	BC847C	LW only
7124©	5322 130 42755	BC847C	LW only

INTEGRATED CIRCUITS

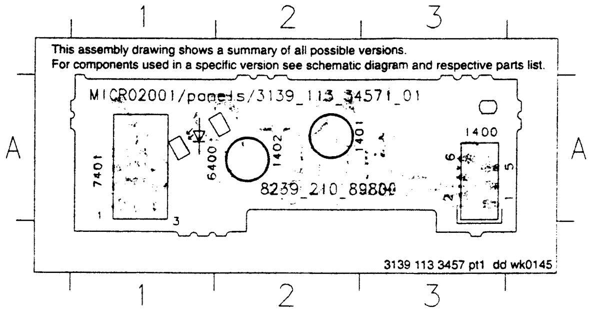
7101	4822 209 90315	TEA5762H/V1, RADIO IC

FRONT CONTROL BOARD

TABLE OF CONTENTS

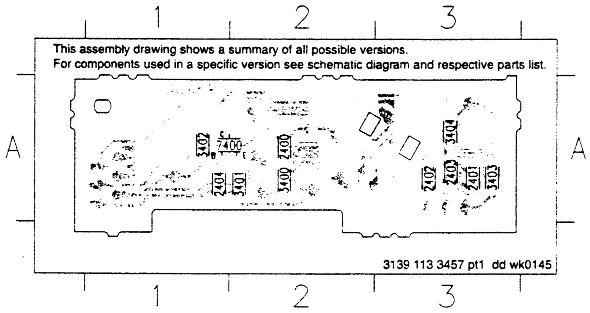
Power Key Part - Layout & Circuit diagram 8-1
Control Part - Component & Chip Layout 8-2
Control Part - Circuit diagram 8-3
CDC Key Part - Layout & Circuit diagram 8-4
Headphone Part - Layout & Circuit diagram 8-4
LightWash CDR Part - Layout & Circuit diagram 8-5
LightWash DTC Part - Layout & Circuit diagram 8-5
Electrical parts list 8-6

POWER KEY PART - LAYOUT & CIRCUIT DIAGRAM



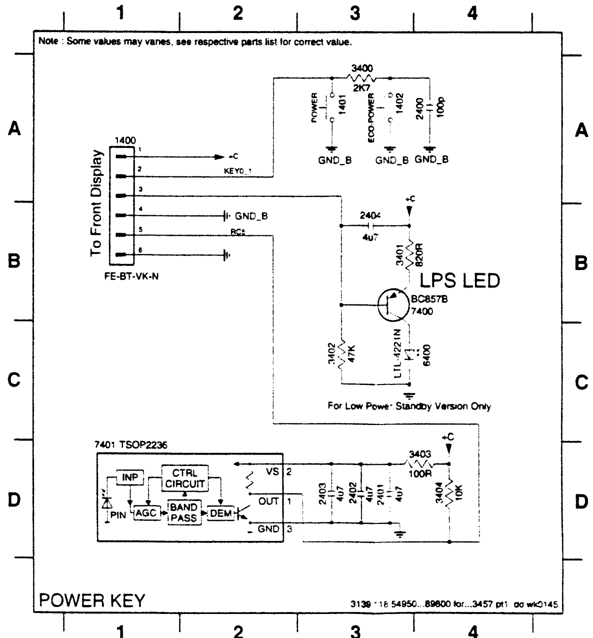
1
2
3
A
This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram and respective parts list.
MICRO2001/panels/3139_113_34571_01
7401
6400
1402
1401
1400
8239_210_89800
3139 113 3457 pt1 dd wk0145

1400	A3
1401	A2
1402	A2
6400	A1
7401	A1



1
2
3
A
This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram and respective parts list.
3402
7400
3400
2404
3401
3400
3404
2402
2403
2401
3403
3139 113 3457 pt1 dd wk0145

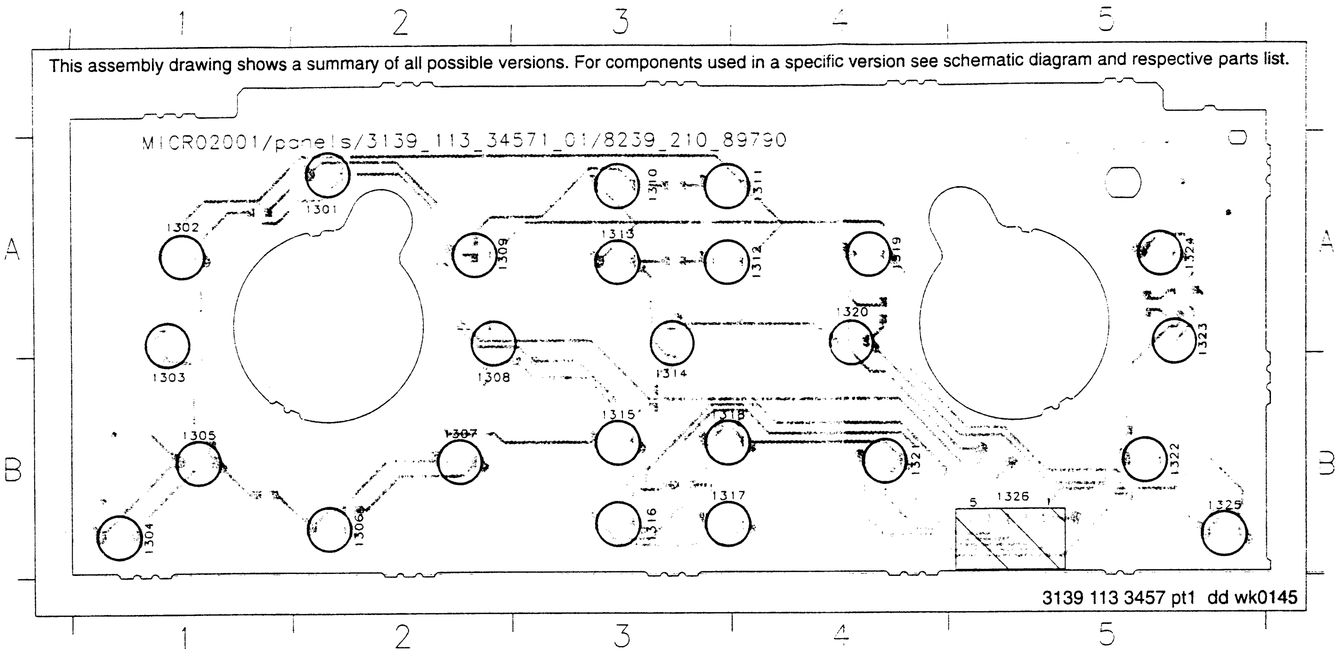
2400	A2
2401	A3
2402	A3
2403	A3
2404	A1
3400	A2
3401	A2
3402	A1
3403	A3
3404	A3
7400	A1



1
2
3
4
A
B
C
D
Note : Some values may vanes, see respective parts list for correct value.
3400
2K7
POWER
1401
ECO-POWER
1402
2400
100p
GND_B
GND_B
GND_B
1400
To Front Display
+C
KEY0_1
GND_B
RCs
FE-BT-VK-N
2404
4u7
+C
3401
820R
LPS LED
BC857B
7400
3402
47K
LTL-4221N
6400
For Low Power Standby Version Only
7401 TSOP2236
INP
CTRL CIRCUIT
PIN
AGC
BAND PASS
DEM
VS 2
OUT 1
GND 3
2403
4u7
2402
4u7
2401
4u7
3403
100R
+C
3404
10K
POWER KEY
3139 ' 18 54950...89800 for...3457 pt1 dd wk0145

1400	B1
1401	A3
1402	A3
2400	A4
2401	D3
2402	D3
2403	D3
2404	B3
3400	A3
3401	B3
3402	C3
3403	D4
3404	D4
6400	C3
7400	B3
7401	D2

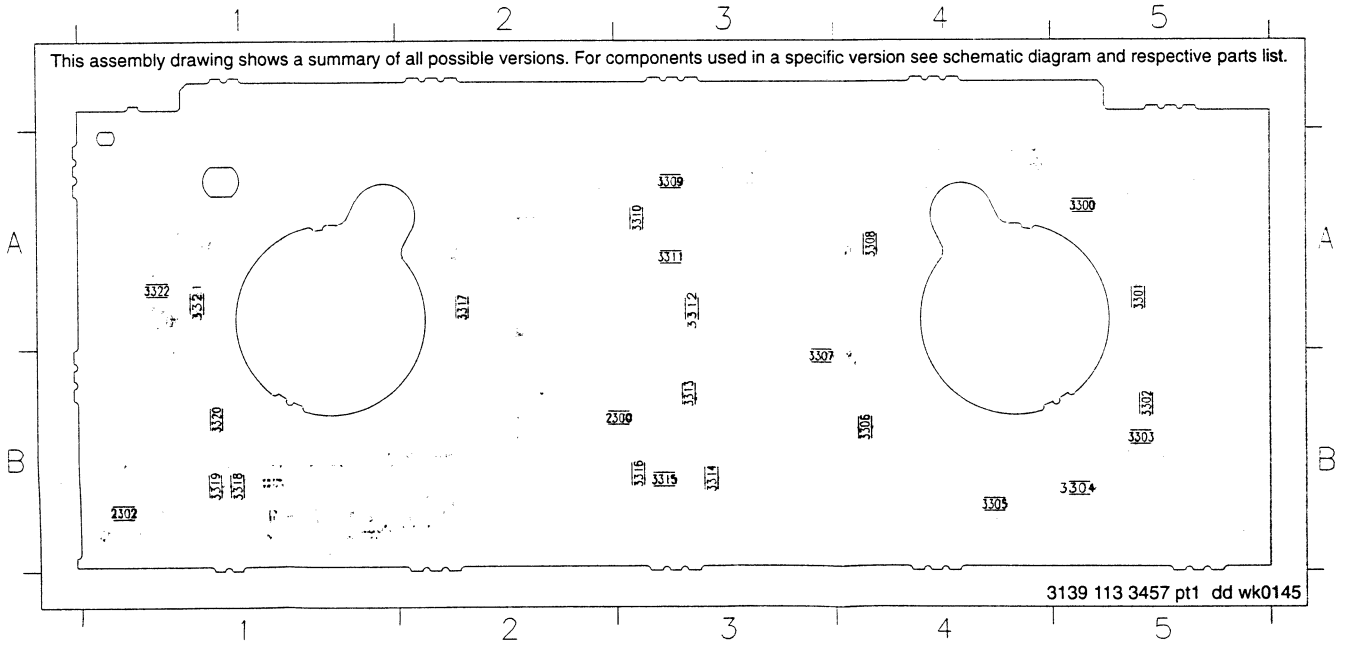
CONTROL PART - COMPONENT & CHIP LAYOUT



This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

1
2
3
4
5
A
B
MICRO2001/panels/3139_113_34571_01/8239_210_89790
1301
1302
1303
1304
1305
1306
1307
1308
1309
1310
1311
1312
1313
1314
1315
1316
1317
1318
1319
1320
1321
1322
1323
1324
1325
1326
3139 113 3457 pt1 dd wk0145

1301	A2
1302	A1
1303	B1
1304	B1
1305	B1
1306	B2
1307	B2
1308	B2
1309	A2
1310	A3
1311	A4
1312	A4
1313	A3
1314	B3
1315	B3
1316	B3
1317	B3
1318	B3
1319	A4
1320	A4
1321	B4
1322	B5
1323	A5
1324	A5
1325	B5
1326	B5



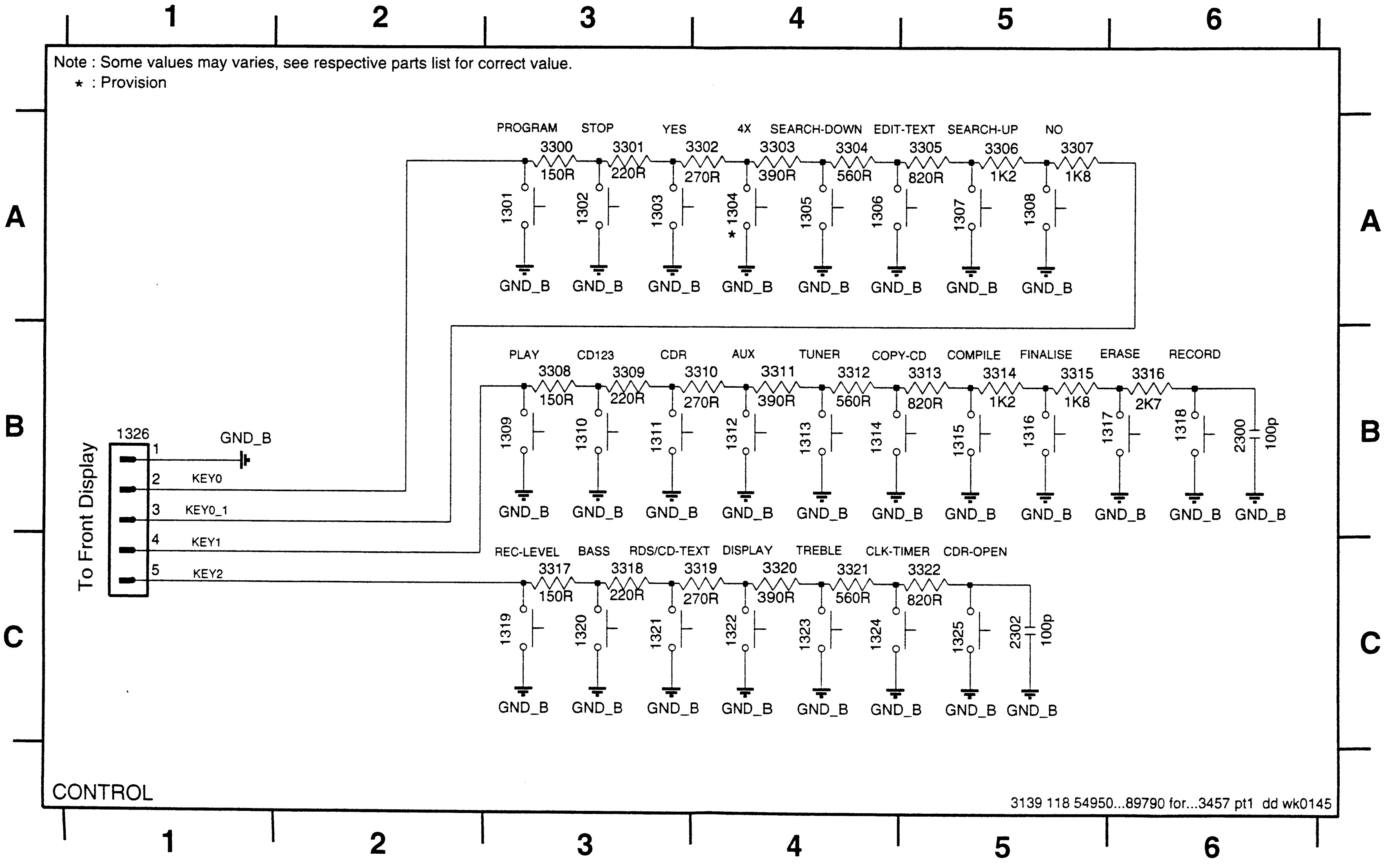
This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

1
2
3
4
5
A
B
3300
3301
3302
3303
3304
3305
3306
3307
3308
3309
3310
3311
3312
3313
3314
3315
3316
3317
3318
3319
3320
3321
3322
2300
2302
3139 113 3457 pt1 dd wk0145

2300	B3
2302	B1
3300	A5
3301	A5
3302	B5
3303	B5
3304	B5
3305	B4
3306	B4
3307	B3
3308	A4
3309	A3
3310	A3
3311	A3
3312	A3
3313	B3
3314	B3
3315	B3
3316	B3
3317	A2
3318	B1
3319	B1
3320	B1
3321	A1
3322	A1

CONTROL PART - CIRCUIT DIAGRAM

1301	A3
1302	A3
1303	A3
1304	A4
1305	A4
1306	A4
1307	A5
1308	A5
1309	B3
1310	B3
1311	B3
1312	B4
1313	B4
1314	B4
1315	B5
1316	B5
1317	B6
1318	B6
1319	C3
1320	C3
1321	C3
1322	C4
1323	C4
1324	C4
1325	C5
1326	B1
2300	B6
2302	C5
3300	A3
3301	A3
3302	A4
3303	A4
3304	A4
3305	A5
3306	A5
3307	A5
3308	B3
3309	B3
3310	B4
3311	B4
3312	B4
3313	B5
3314	B5
3315	B5
3316	B6
3317	C3
3318	C3
3319	C4
3320	C4
3321	C4
3322	C5



Note : Some values may varies, see respective parts list for correct value.
⋆ : Provision

1
2
3
4
5
6
A
B
C
PROGRAM
STOP
YES
4X
SEARCH-DOWN
EDIT-TEXT
SEARCH-UP
NO
3300 150R
3301 220R
3302 270R
3303 390R
3304 560R
3305 820R
3306 1K2
3307 1K8
1301
1302
1303
⋆ 1304
1305
1306
1307
1308
GND_B
PLAY
CD123
CDR
AUX
TUNER
COPY-CD
COMPILE
FINALISE
ERASE
RECORD
3308 150R
3309 220R
3310 270R
3311 390R
3312 560R
3313 820R
3314 1K2
3315 1K8
3316 2K7
1309
1310
1311
1312
1313
1314
1315
1316
1317
1318
2300 100p
REC-LEVEL
BASS
RDS/CD-TEXT
DISPLAY
TREBLE
CLK-TIMER
CDR-OPEN
3317 150R
3318 220R
3319 270R
3320 390R
3321 560R
3322 820R
1319
1320
1321
1322
1323
1324
1325
2302 100p
1326
1 GND_B
2 KEY0
3 KEY0_1
4 KEY1
5 KEY2
To Front Display
CONTROL
3139 118 54950...89790 for...3457 pt1 dd wk0145

ELECTRICAL PARTS LIST - FRONT CONTROL BOARD

MISCELLANEOUS

1301	4822 276 13775	Tact Switch
1302	4822 276 13775	Tact Switch
1303	4822 276 13775	Tact Switch
1305	4822 276 13775	Tact Switch
1306	4822 276 13775	Tact Switch
1307	4822 276 13775	Tact Switch
1308	4822 276 13775	Tact Switch
1309	4822 276 13775	Tact Switch
1310	4822 276 13775	Tact Switch
1311	4822 276 13775	Tact Switch
1312	4822 276 13775	Tact Switch
1313	4822 276 13775	Tact Switch
1314	4822 276 13775	Tact Switch
1315	4822 276 13775	Tact Switch
1316	4822 276 13775	Tact Switch
1317	4822 276 13775	Tact Switch
1318	4822 276 13775	Tact Switch
1319	4822 276 13775	Tact Switch
1320	4822 276 13775	Tact Switch
1321	4822 276 13775	Tact Switch
1322	4822 276 13775	Tact Switch
1323	4822 276 13775	Tact Switch
1324	4822 276 13775	Tact Switch
1325	4822 276 13775	Tact Switch
1400	4822 267 10731	Flex Connector 6P
1401	4822 276 13775	Tact Switch
1402	4822 276 13775	Tact Switch
1501	4822 276 13775	Tact Switch
1502	4822 276 13775	Tact Switch
1503	4822 276 13775	Tact Switch
1600	4822 267 10733	Flex Connector 4P
1601	2422 026 05059	Headphone Socket

CAPACITORS

2300	4822 122 31765	100pF 2% 63V	
2302	4822 122 31765	100pF 2% 63V	
2400	4822 122 31765	100pF 2% 63V	
2401	2020 552 96305	4,7uF +80/-20% 10V	
2402	2020 552 96305	4,7uF +80/-20% 10V	
2403	2020 552 96305	4,7uF +80/-20% 10V	
2404	2020 552 96305	4,7uF +80/-20% 10V	/22
2500	4822 122 31765	100pF 2% 63V	
2600	4822 126 14494	22nF 10% 25V	
2601	4822 126 14494	22nF 10% 25V	
2602	4822 126 14494	22nF 10% 25V	

RESISTORS

3300	4822 117 10353	150R 1% 0,1W	
3301	4822 117 11503	220R 1% 0,1W	
3302	4822 051 30271	270R 5% 0,062W	
3303	4822 051 30391	390R 5% 0,062W	
3304	4822 051 30561	560R 5% 0,062W	
3305	4822 117 12968	820R 5% 0,62W	
3306	4822 117 11817	1k2 1% 1/16W	
3307	4822 117 12903	1k8 1% 0,063W	
3308	4822 051 30151	150R 5% 0,062W	
3309	4822 117 11503	220R 1% 0,1W	
3310	4822 051 30271	270R 5% 0,062W	
3311	4822 051 30391	390R 5% 0,062W	
3312	4822 051 30561	560R 5% 0,062W	
3313	4822 117 12968	820R 5% 0,62W	
3314	4822 117 11817	1k2 1% 1/16W	
3315	4822 117 12903	1k8 1% 0,063W	
3316	4822 051 30272	2k7 5% 0,062W	
3317	4822 051 30151	150R 5% 0,062W	
3318	4822 051 30221	220R 5% 0,062W	
3319	4822 051 30271	270R 5% 0,062W	
3320	4822 051 30391	390R 5% 0,062W	
3321	4822 051 30561	560R 5% 0,062W	
3322	4822 117 12968	820R 5% 0,62W	
3400	4822 051 30272	2k7 5% 0,062W	
3401	4822 117 12968	820R 5% 0,62W	/22
3402	4822 117 12925	47k 1% 0,063W	/22
3403	4822 051 30101	100R 5% 0,062W	
3404	4822 051 30103	10k 5% 0,062W	
3500	4822 051 30151	150R 5% 0,062W	
3501	4822 051 30221	220R 5% 0,062W	
3700	4822 051 30339	33R 5% 0,062W	
3800	4822 051 30339	33R 5% 0,062W	
3801	4822 051 30121	120R 5% 0,062W	

COILS & FILTERS

5600	4822 157 10586	Coil 2,2uH 10%
5601	4822 157 10586	Coil 2,2uH 10%
5602	4822 157 10586	Coil 2,2uH 10%

DIODES

6400	9322 167 73676	LTL-4221NLC-KA	/22
6700	9322 147 33676	LNX9A8BYB0PH	
6800	9322 178 87676	LTL-1CHTBK4-KA	
6801	9322 158 39676	LTL-4266NUR	

TRANSISTORS & INTEGRATED CIRCUITS

7400	4822 130 60373	BC857B	/22
7401	9322 155 22667	IR Receiver TSOP2236ZC1	

Note : Only the parts mentioned in this list are normal service spare parts.

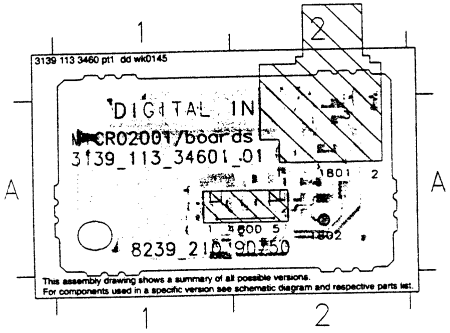
DIGITAL IN BOARD

TABLE OF CONTENTS

Component & Chip layout 9-2
Circuit diagram 9-2
Electrical parts list 9-2

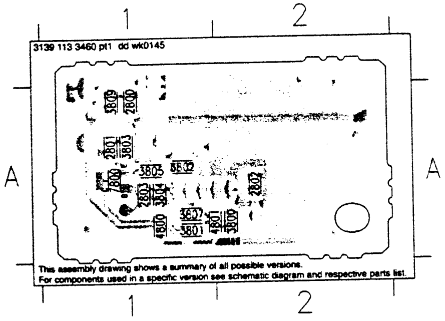
DIGITAL IN BOARD - COMPONENT LAYOUT

1800 A2	1801 A2	1802 A2


1
2
3139 113 3460 pt1 dd wk0145
DIGITAL IN
CR02001/boards
3139_113_34601_01
1801 2
1800 5
1802
8239_210_90750
A
A
This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram and respective parts list.
1
2

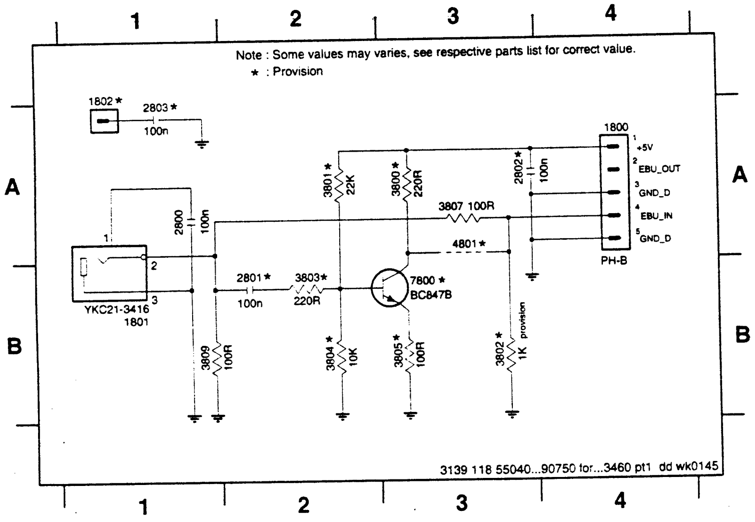
DIGITAL IN BOARD - CHIP LAYOUT

2800	A1	3800	A2	3804	A1	4800	A1
2801	A1	3801	A1	3805	A1	4801	A1
2802	A2	3802	A1	3807	A1	7800	A1
2803	A1	3803	A1	3809	A1		


1
2
3139 113 3460 pt1 dd wk0145
3809
7800
2801
3803
3805
3800
3802
3804
1800
3807
3801
1801
3809
2802
A
A
This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram and respective parts list.
1
2

DIGITAL IN BOARD - CIRCUIT DIAGRAM

1800 A4	1802 A1	2801 B2	2803 A1	3801 A2	3803 B2	3805 B3	3809 B1	7800 B3
1801 B1	2800 A1	2802 A3	3800 A3	3802 B3	3804 B2	3807 A3	4801 A3	


1
2
3
4
Note : Some values may varies, see respective parts list for correct value.
★ : Provision
A
B
1802★
2803★
100n
1800
+5V
EBU_OUT
GND_D
EBU_IN
GND_D
PH-B
3801★
22K
3800★
220R
2802★
100n
2800
100n
3807 100R
4801★
YKC21-3416
1801
2801★
100n
3803★
220R
7800★
BC847B
3809
100R
3804★
10K
3805★
100R
3802★
1K provision
3139 118 55040...90750 for...3460 pt1 dd wk0145
A
B
1
2
3
4

ELECTRICAL PARTS LIST - DIGITAL IN BOARD

MISCELLANEOUS

1801	*4822 267 31729*	Cinch Socket - Digital in

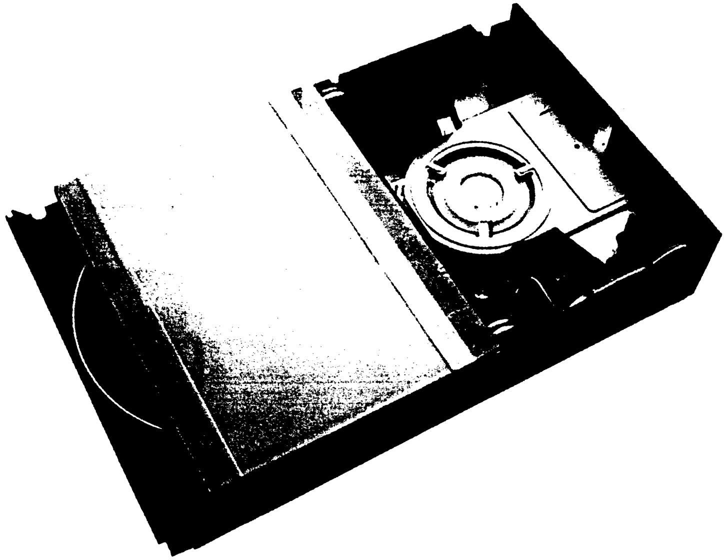
CAPACITORS

2800	4822 126 14305	100nF 10% 16V

RESISTORS

3807	4822 051 30101	100R 5% 0,062W
3809	4822 051 30101	100R 5% 0,062W

Note : Only the parts mentioned in this list are normal service spare parts.



3DTC Module

(CDR version)

Layout stage .5

TABLE OF CONTENTS

Service hints 10-2
Wiring 10-3
Location of switches 10-4
Blockdiagram 10-5
Component Layout Main Board 10-6
Circuit Diagram part1 10-7
Component Layout Main Board 10-8
Circuit Diagram part2 10-9
Circuit Diagram part3 10-10
Exploded View 10-11
Mechanical Partslist 10-11
Electrical Partslist 10-12

See also separate Training Manual 3DTC **3103 785 25140**

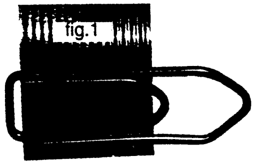
WARNING

CHARGED CAPACITORS ON THE SERVO BOARD MAY DAMAGE THE CD DRIVE ELECTRONICS WHEN CONNECTING A NEW CDM MECHANISM. THAT'S WHY, BESIDES THE SAFETY MEASURES LIKE
- ***SWITCH OFF POWER SUPPLY***
- ***ESD PROTECTION***

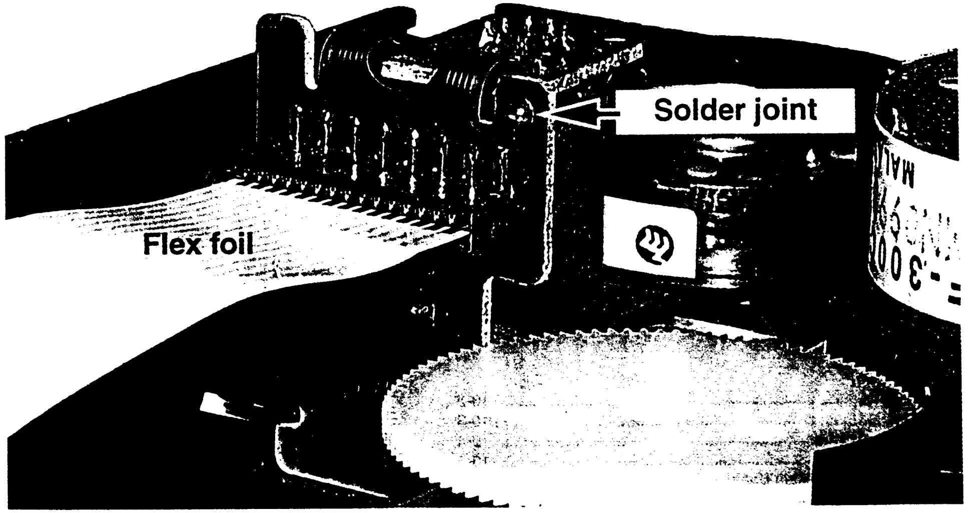
ADDITIONAL ACTIONS MUST BE TAKEN BY THE REPAIR TECHNICIAN.

The following steps have to be done when replacing the CD mechanism:

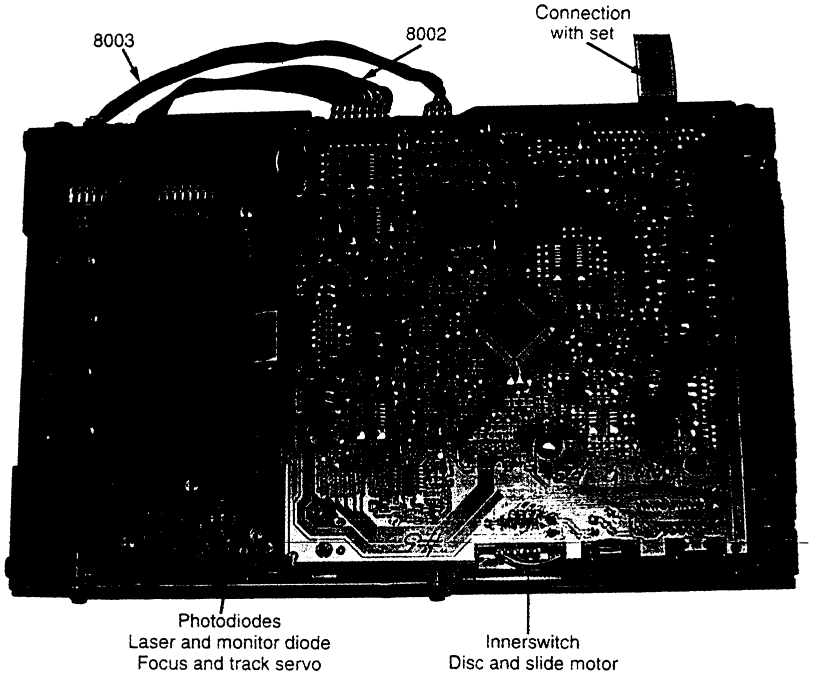
1. Disconnect CD drive flexfoil from old CD drive
2. Connect paperclip to CD drive flexfoil to short-circuit flexfoil (fig.1)
3. Remove old CD drive
4. Remove short-circuit from flexfoil of CD drive
5. Connect flexfoil to new CD drive
6. Position new CD drive in its studs
7. Remove short-circuit from Laserunit



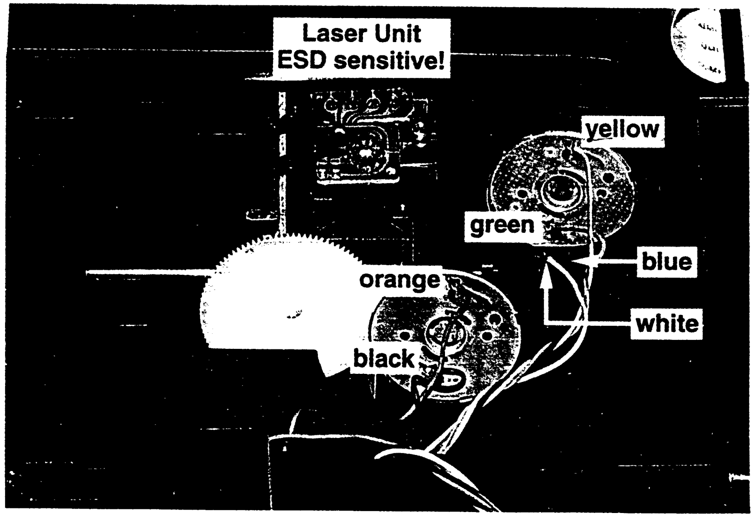
Attention: The laser diode of this CD drive is protected against ESD by a solder joint which shortcircuits the laserdiode to ground.
For proper functionality of the CD drive this solder joint must be removed **after** connection the drive to the set.


Solder joint
Flex foil

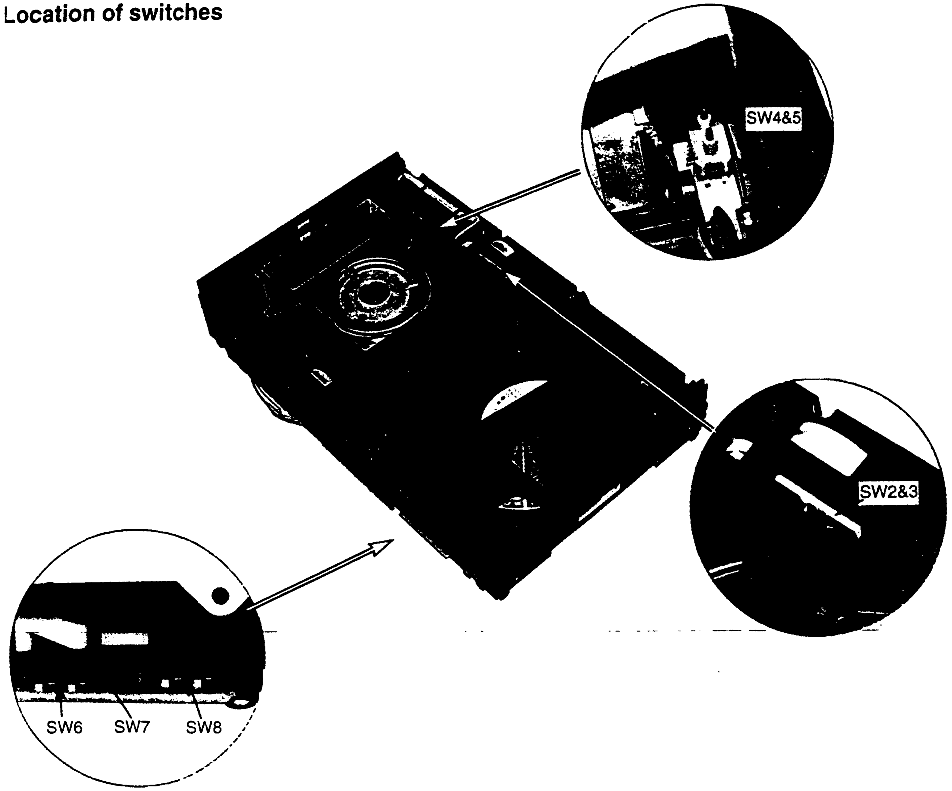
WIRING
Module


8003
8002
Connection with set
Photodiodes
Laser and monitor diode
Focus and track servo
Innerswitch
Disc and slide motor

WIRING
CD Drive


Laser Unit
ESD sensitive!
yellow
green
blue
orange
white
black

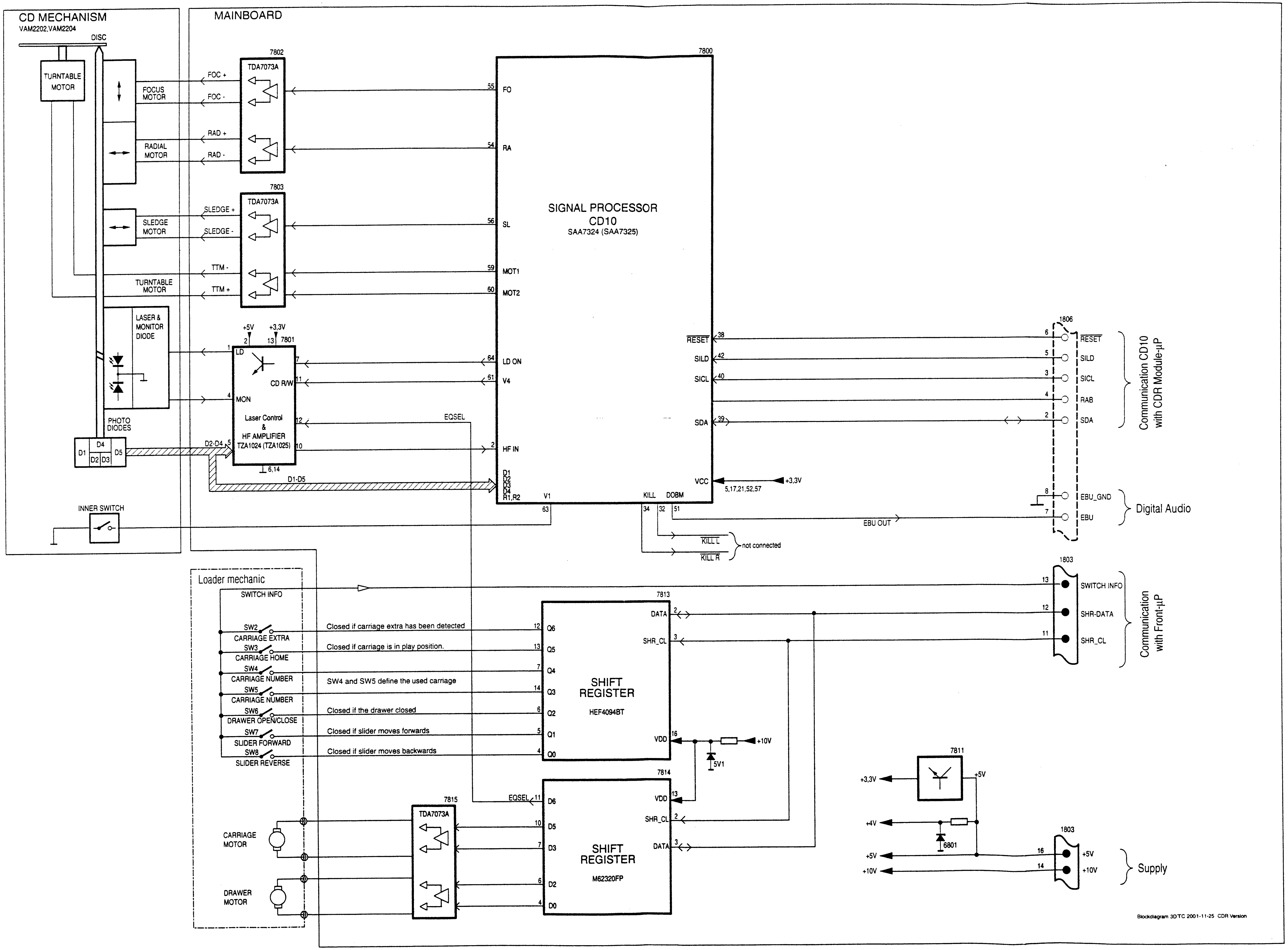
Location of switches



Truth Table

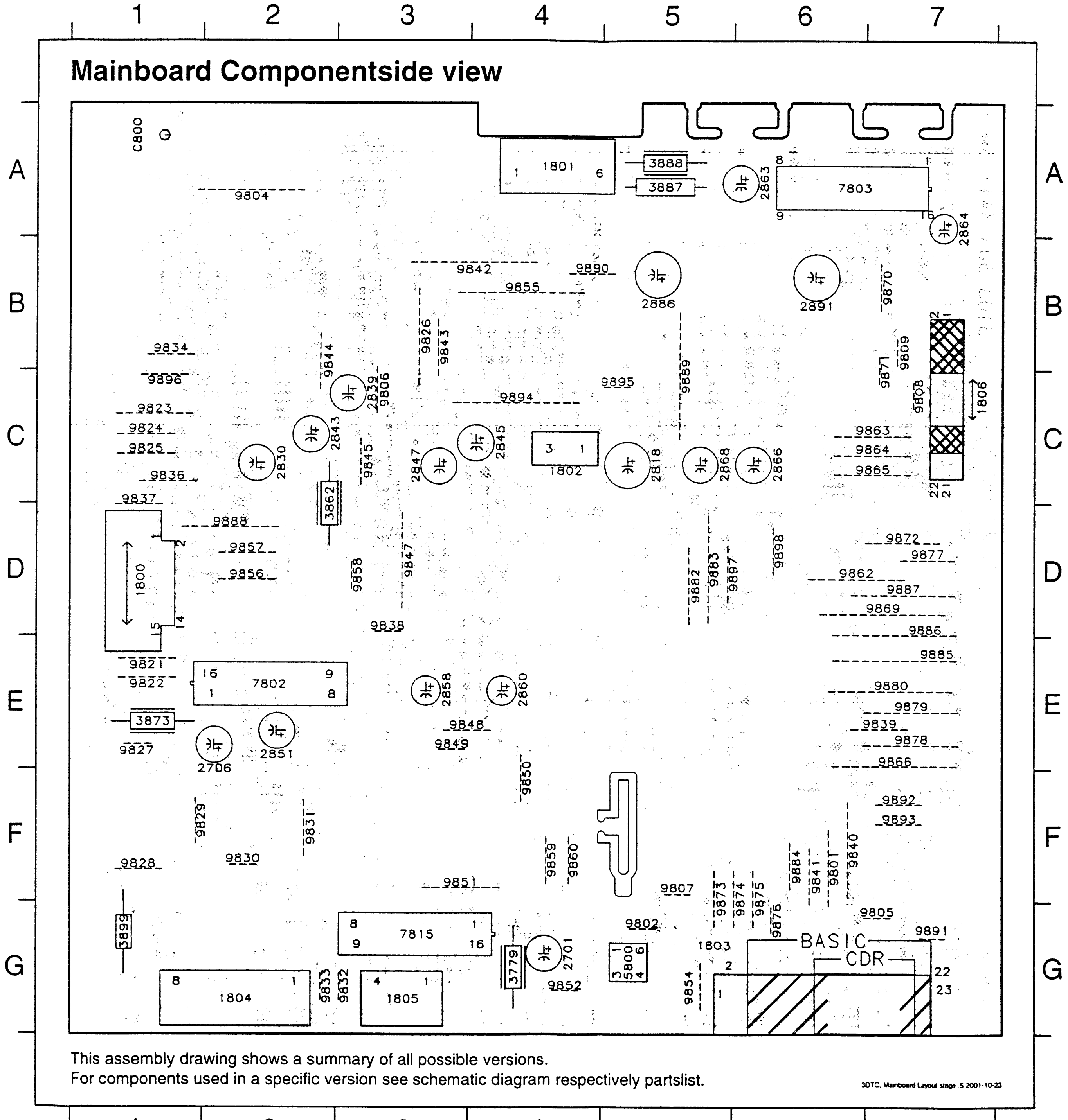
Function	Register output / Switch							
	Q0	Q1	Q2	Q3	Q4	Q5	Q6	Q7
	SW 8	SW 7	SW 6	SW 5	SW 4	SW 3	SW 2	-
Slider reverse recognition	1	0	0	0	0	0	0	X
Slider forward recognition	0	1	0	0	0	0	0	X
Drawer closed recognition	0	0	1	0	0	0	0	X
No carriage under clamper	0	0	0	0	0	0	0	X
Carriage #1 under clamper	0	0	0	0	1	0	0	X
Carriage #2 under clamper	0	0	0	1	0	0	0	X
Carriage #3 under clamper	0	0	0	1	1	0	0	X
Carriage home recognition	0	0	0	0	0	1	0	X
Carriage extra recognition	0	0	0	0	0	0	1	X

BLOCK DIAGRAM 3DTC


CD MECHANISM
VAM2202,VAM2204
DISC
TURNTABLE MOTOR
FOCUS MOTOR
RADIAL MOTOR
SLEDGE MOTOR
TURNTABLE MOTOR
LASER & MONITOR DIODE
PHOTO DIODES
D1
D4
D2
D3
D5
INNER SWITCH
MAINBOARD
7802
TDA7073A
FOC +
FOC -
RAD +
RAD -
7803
TDA7073A
SLEDGE +
SLEDGE -
TTM -
TTM +
+5V
+3,3V
7801
LD
MON
CD R/W
Laser Control
&
HF AMPLIFIER
TZA1024 (TZA1025)
6,14
D2-D4
D1-D5
EQSEL
7800
SIGNAL PROCESSOR
CD10
SAA7324 (SAA7325)
FO
RA
SL
MOT1
MOT2
LD ON
V4
HF IN
D1
D2
D3
D4
R1,R2
V1
KILL
DOBM
RESET
SILD
SICL
SDA
VCC
5,17,21,52,57
+3,3V
KILL L
KILL R
not connected
EBU OUT
1806
RESET
SILD
SICL
RAB
SDA
EBU_GND
EBU
Communication CD10 with CDR Module-µP
Digital Audio
1803
SWITCH INFO
SHR-DATA
SHR_CL
Communication with Front-µP
Loader mechanic
SWITCH INFO
SW2
CARRIAGE EXTRA
SW3
CARRIAGE HOME
SW4
CARRIAGE NUMBER
SW5
CARRIAGE NUMBER
SW6
DRAWER OPEN/CLOSE
SW7
SLIDER FORWARD
SW8
SLIDER REVERSE
Closed if carriage extra has been detected
Closed if carriage is in play position.
SW4 and SW5 define the used carriage
Closed if the drawer closed
Closed if slider moves forwards
Closed if slider moves backwards
7813
SHIFT REGISTER
HEF4094BT
Q6
Q5
Q4
Q3
Q2
Q1
Q0
DATA
SHR_CL
VDD
+10V
5V1
7814
SHIFT REGISTER
M62320FP
EQSEL
D6
D5
D3
D2
D0
VDD
SHR_CL
DATA
7815
TDA7073A
CARRIAGE MOTOR
DRAWER MOTOR
7811
+3,3V
+5V
+4V
6801
+5V
+10V
1803
+5V
+10V
Supply
Blockdiagram 3DTC 2001-11-25 CDR Version

1800 D1	2818 C5	2863 A6	3887 A5	9804 A2	9824 C1	9833 G2	9843 B3	9854 G5	9864 C7	9875 F6	9885 E7	9894 C4
1801 A4	2830 C2	2864 A7	3888 A5	9805 G7	9825 C1	9834 B1	9844 B2	9855 B4	9865 C7	9876 G6	9886 D7	9895 C5
1802 C4	2839 C3	2866 C6	3899 G1	9806 C3	9826 B3	9836 C1	9845 C3	9856 D2	9866 E7	9877 D7	9887 D7	9896 C1
1803 G5	2843 C2	2868 C5	5800 G5	9807 F5	9827 E1	9837 C1	9847 D3	9857 D2	9869 D7	9878 E7	9888 D2	9897 D6
1804 G2	2845 C4	2886 B5	7802 E2	9808 C7	9828 F1	9838 D3	9848 E3	9858 D3	9870 B7	9879 E7	9889 C5	9898 D6
1805 G3	2847 C3	2891 B6	7803 A6	9809 B7	9829 F1	9839 E7	9849 E3	9859 F4	9871 B7	9880 E7	9890 B4	C800 A1
1806 C7	2851 E2	3779 G4	7815 G3	9821 E1	9830 F2	9840 F6	9850 F4	9860 F4	9872 D7	9882 D5	9891 G7	
2701 G4	2858 E3	3862 D2	9801 F6	9822 E1	9831 F2	9841 F6	9851 F3	9862 D6	9873 F5	9883 D5	9892 F7	
2706 E2	2860 E4	3873 E1	9802 G5	9823 C1	9832 G3	9842 B4	9852 G4	9863 C7	9874 F6	9884 F6	9893 F7	

Mainboard Componentside view

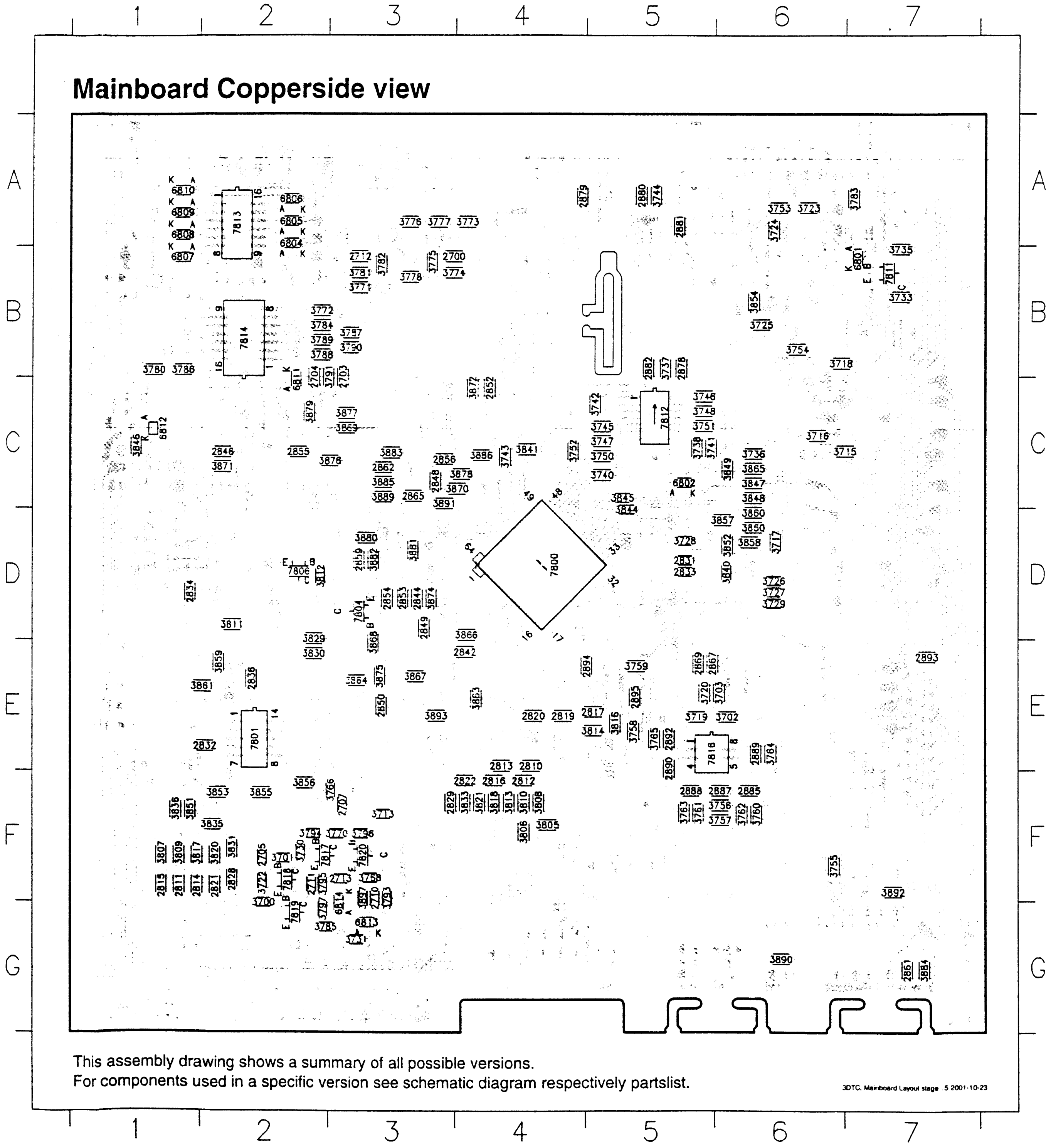

1
2
3
4
5
6
7
A
B
C
D
E
F
G
C800
1801
3888
3887
2863
7803
2864
9804
9842
9855
9890
2886
2891
9870
9834
9896
9826
9843
9844
2839
9806
9895
9889
9809
9871
9808
1806
9823
9824
9825
9836
9837
2830
2843
9845
2847
2845
9894
1802
2818
2868
2866
9863
9864
9865
3862
9888
9857
9856
9858
9847
9882
9883
9887
9898
9872
9877
9862
9887
9869
9886
9885
1800
9838
9821
9822
7802
3873
9827
2706
2851
2858
2860
9848
9849
9880
9879
9839
9878
9866
9850
9892
9893
9829
9831
9828
9830
9851
9859
9860
9807
9873
9874
9875
9876
9884
9841
9801
9840
9805
9891
3899
7815
3779
2701
9852
9802
5800
1803
9854
BASIC
CDR
1804
9833
9832
1805

This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

3DTC. Mainboard Layout stage 5 2001-10-23

2700 B3	2816 F4	2846 C2	2878 B5	3701 F2	3727 D6	3745 C5	3761 F5	3778 B3	3795 F2	3818 F4	3848 C6	3864 E3	3880 D3	6804 A2	7811 B7
2703 B3	2817 E5	2848 C3	2879 A4	3702 E6	3728 D5	3746 C5	3762 F6	3780 B1	3796 F3	3820 F2	3849 C6	3865 C6	3881 D3	6805 A2	7812 C5
2704 B2	2819 E4	2849 D3	2880 A5	3703 E6	3729 D6	3747 C5	3763 F5	3781 B3	3797 G2	3821 F4	3850 D6	3866 D4	3882 D3	6806 A2	7813 A2
2705 F2	2820 E4	2850 E3	2881 A5	3713 F3	3730 F2	3748 C5	3764 E6	3782 B3	3805 F4	3829 D2	3851 F1	3867 E3	3883 C3	6807 B1	7814 B2
2707 F3	2821 F2	2852 C4	2882 B5	3715 C6	3731 G3	3750 C5	3765 E5	3783 A7	3806 F4	3830 E2	3852 D6	3868 E3	3884 G7	6808 A1	7816 E5
2710 F3	2822 F4	2853 D3	2885 F6	3716 C6	3733 B7	3751 C5	3766 F3	3784 B2	3807 F1	3831 F2	3853 F2	3869 C3	3885 C3	6809 A1	7817 F2
2711 F2	2828 F2	2854 D3	2887 F6	3717 D6	3735 B7	3752 C4	3768 F3	3785 G2	3808 F4	3833 F4	3854 B6	3870 C4	3886 C4	6810 A1	7818 F2
2712 B3	2829 F3	2855 C2	2888 F5	3718 B6	3736 C6	3753 A6	3770 F3	3786 B1	3809 F1	3835 F2	3855 F2	3871 C2	3889 C3	6811 C2	7819 G2
2713 F3	2831 D5	2856 C3	2889 E6	3719 E5	3737 B5	3754 B6	3771 B3	3787 B3	3810 F4	3836 F1	3856 F2	3872 C4	3890 G6	6812 C1	7820 F3
2810 E4	2832 E2	2859 D3	2890 E5	3720 E5	3738 C5	3755 F6	3772 B2	3788 B2	3811 D2	3840 D6	3857 D6	3874 D3	3891 C3	6813 G3	
2811 F1	2833 D5	2861 G7	2892 E5	3722 F2	3740 C5	3756 F6	3773 A4	3789 B2	3812 D2	3841 C4	3858 D6	3875 E3	3892 F7	6814 G3	
2812 F4	2834 D1	2862 C3	2893 E7	3723 A6	3741 C5	3757 F6	3774 B3	3790 B3	3813 F4	3844 D5	3859 E2	3876 C3	3893 E3	7800 D4	
2813 E4	2836 E2	2865 C3	2894 E5	3724 A6	3742 C5	3758 E5	3775 B3	3791 B3	3814 E5	3845 C5	3860 D6	3877 C3	3897 F3	7801 E2	
2814 F1	2842 E4	2867 E5	2895 E5	3725 B6	3743 C4	3759 E5	3776 A3	3793 F3	3816 E5	3846 C1	3861 E2	3878 C4	6801 B7	7804 D3	
2815 F1	2844 D3	2869 E5	3700 G2	3726 D6	3744 A5	3760 F6	3777 A3	3794 F2	3817 F1	3847 C6	3863 E4	3879 C2	6802 C5	7806 D2	

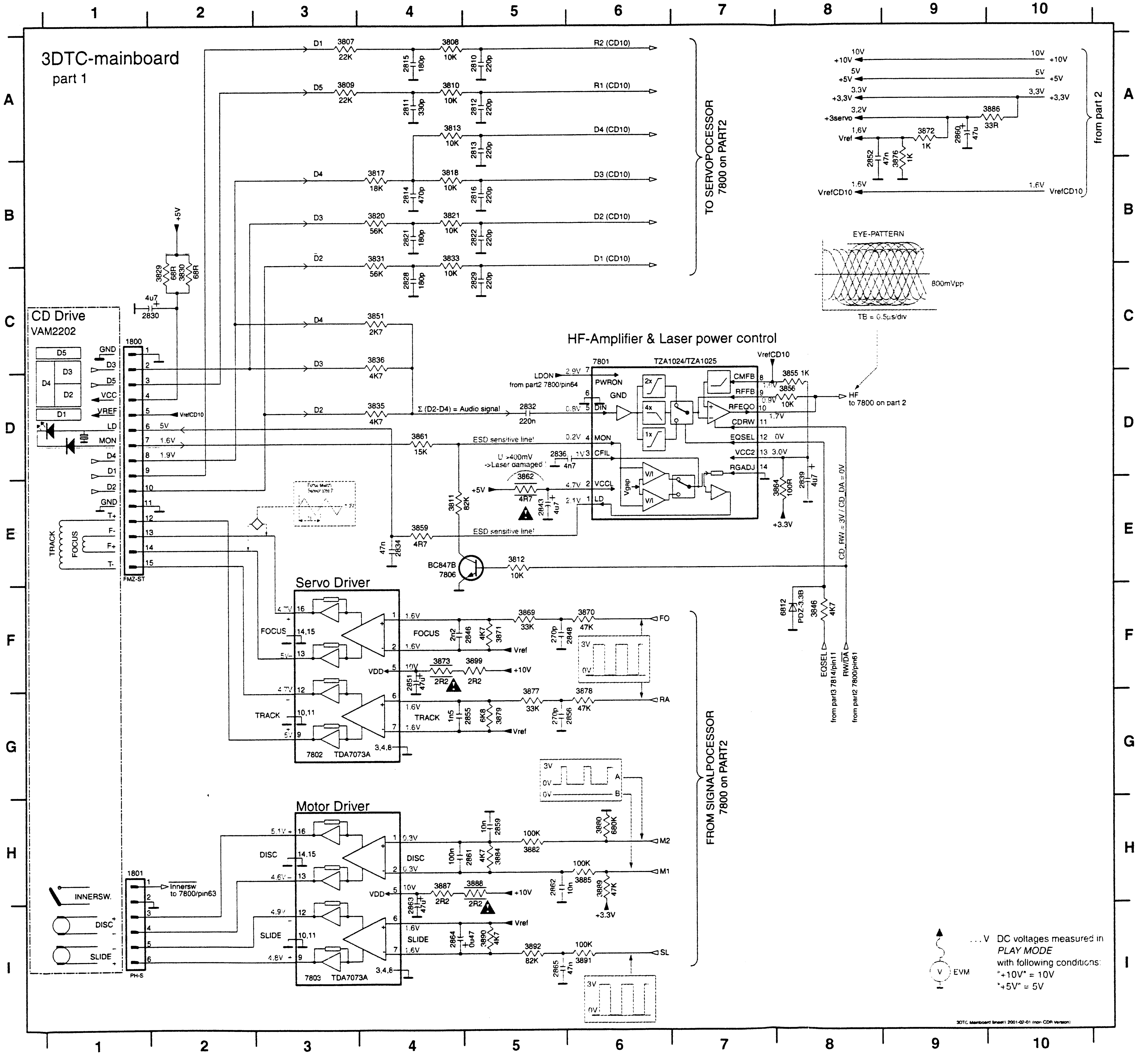
Mainboard Copperside view


1
2
3
4
5
6
7
A
B
C
D
E
F
G
6810
6809
6808
6807
7813
6806
6805
6804
3776
3777
3773
2879
2880
3744
2881
3753
3723
3783
2712
3781
3782
3771
3778
3775
2700
3774
6801
7811
3735
3733
7814
3772
3784
3787
3789
3790
3788
3780
3786
3854
3725
3754
3718
3877
3869
2882
3737
2878
3746
3748
3751
3716
3715
3846
6812
2846
3871
2855
3876
3883
2862
3885
3889
2865
2856
3878
3870
3891
3886
3743
3841
3752
3745
3747
3750
3740
7812
3738
3741
6802
3849
3736
3865
3847
3848
3880
3850
3857
3858
3852
3717
3840
3728
2831
2833
7800
7806
7804
3881
2834
3811
3829
3830
3866
2842
3726
3727
3729
2893
3859
2836
3861
3884
3875
3867
2894
3759
2869
2867
3720
3703
3719
3702
7801
2832
3893
2820
2819
3817
3814
3816
3758
3765
2892
2890
7816
2889
3764
2813
2810
2822
2816
2812
2888
2887
2885
3853
3855
3856
3835
3763
3761
3756
3757
3762
3760
3755
3892
3890
3861
3884

This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

3DTC. Mainboard Layout stage 5 2001-10-23

1800	C1	2813	A5	2822	B5	2834	E4	2848	F5	2859	H5	2864	I4	3810	A4	3821	B4	3835	D4	3856	D8	3869	F5	3876	B9	3884	H5	3890	I5	7801	D6
1801	I1	2814	B4	2828	C4	2836	D6	2851	F4	2860	B9	2865	I5	3813	A4	3829	C2	3836	C4	3859	E4	3870	F6	3877	G5	3885	H6	3891	I6	7802	G3
2810	A5	2815	A4	2829	C5	2839	E8	2852	B8	2861	H4	3807	A3	3817	B4	3830	C2	3846	F8	3861	D4	3871	F5	3878	G6	3886	A10	3892	I5	7803	I3
2811	A4	2816	B5	2830	C2	2843	E5	2855	G4	2862	H5	3808	A4	3818	B4	3831	B4	3851	C4	3862	E5	3872	B9	3879	G5	3887	H4	3899	F5		
2812	A4	2821	B4	2832	D5	2846	F4	2856	G5	2863	H4	3809	A3	3820	B4	3833	B4	3855	D8	3864	E8	3873	F4	3882	H5	3888	H5	6812	F8		

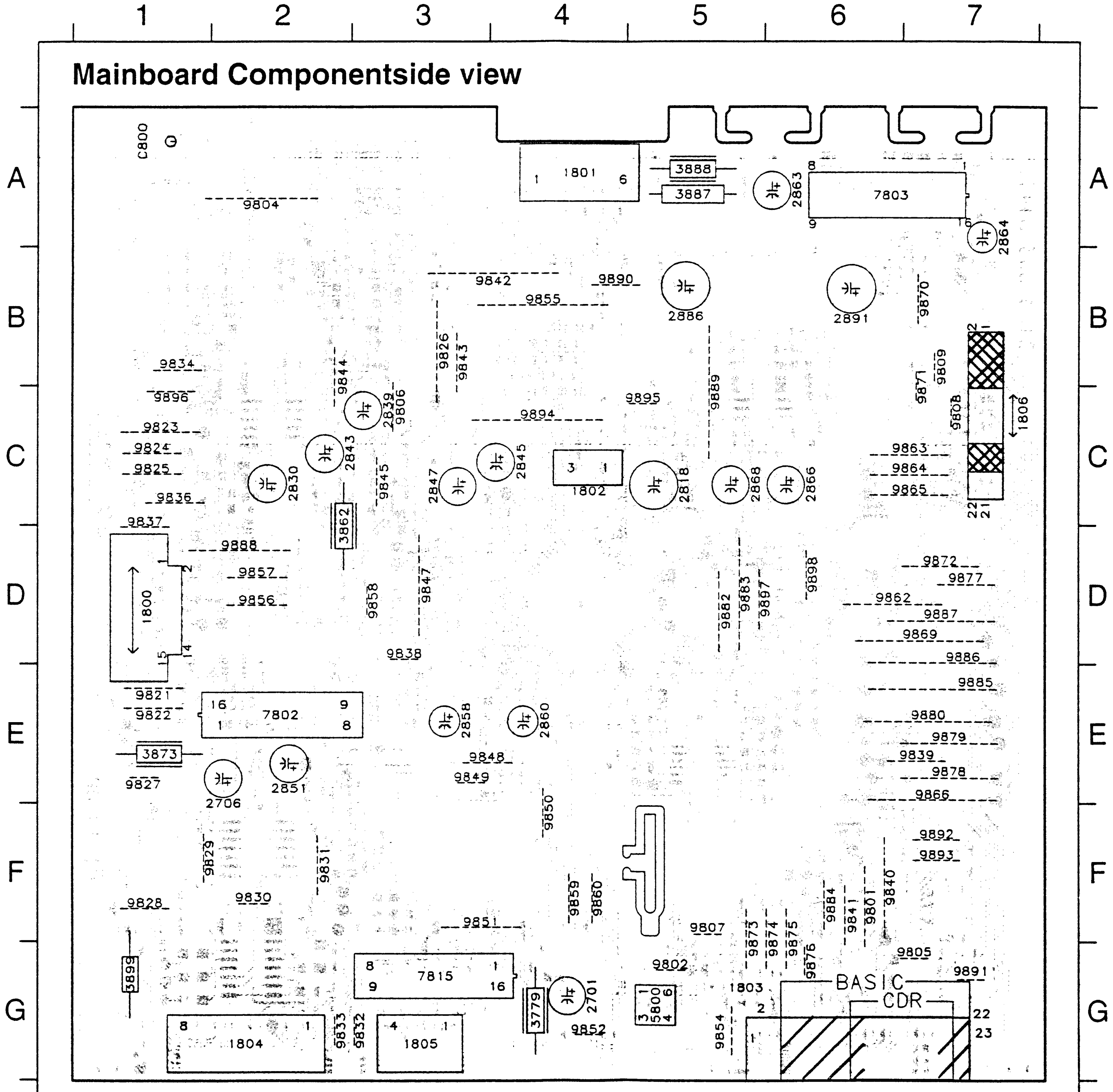

3DTC-mainboard
part 1
CD Drive
VAM2202
TO SERVOPROCESSOR 7800 on PART2
from part 2
EYE-PATTERN
800mVpp
TB = 0.5µs/div
HF-Amplifier & Laser power control
7801
TZA1024/TZA1025
LDON
from part2 7800/pin64
PWRON
GND
DIN
MON
CFIL
VCCL
LD
CMFB
RFFB
RFEQO
CDRW
EQSEL
VCC2
RGADJ
Vgap
V/I
VrefCD10
HF
to 7800 on part 2
Σ (D2-D4) = Audio signal
ESD sensitive line!
U >400mV
->Laser damaged !
CD_RW = 3V / CD_DA = 0V
BC847B
7806
EQSEL
from part3 7814/pin11
RW/DA
from part2 7800/pin61
Servo Driver
FOCUS
TRACK
VDD
7802 TDA7073A
FO
RA
FROM SIGNALPROCESSOR 7800 on PART2
Motor Driver
DISC
SLIDE
7803 TDA7073A
M2
M1
SL
Innersw
to 7800/pin63
INNERSW.
1800
1801
FMZ-ST
PH-S
TRACK
FOCUS
+10V
+5V
+3,3V
+3servo
Vref
VrefCD10
3DTC Mainboard Sheet1 2001-02-01 (non CDR Version)
1 2 3 4 5 6 7 8 9 10
A B C D E F G H I

...V DC voltages measured in *PLAY MODE* with following conditions:
"+10V" = 10V
"+5V" = 5V

V
EVM

1800	D1	2818	C5	2863	A6	3887	A5	9804	A2	9824	C1	9833	G2	9843	B3	9854	G5	9864	C7	9875	F6	9885	E7	9894	C4
1801	A4	2830	C2	2864	A7	3888	A5	9805	G7	9825	C1	9834	B1	9844	B2	9855	B4	9865	C7	9876	G6	9886	D7	9895	C5
1802	C4	2839	C3	2866	C6	3899	G1	9806	C3	9826	B3	9836	C1	9845	C3	9856	D2	9866	E7	9877	D7	9887	D7	9896	C1
1803	G5	2843	C2	2868	C5	5800	G5	9807	F5	9827	E1	9837	C1	9847	D3	9857	D2	9869	D7	9878	E7	9888	D2	9897	D6
1804	G2	2845	C4	2886	B5	7802	E2	9808	C7	9828	F1	9838	D3	9848	E3	9858	D3	9870	B7	9879	E7	9889	C5	9898	D6
1805	G3	2847	C3	2891	B6	7803	A6	9809	B7	9829	F1	9839	E7	9849	E3	9859	F4	9871	B7	9880	E7	9890	B4	C800	A1
1806	C7	2851	E2	3779	G4	7815	G3	9821	E1	9830	F2	9840	F6	9850	F4	9860	F4	9872	D7	9882	D5	9891	G7		
2701	G4	2858	E3	3862	D2	9801	F6	9822	E1	9831	F2	9841	F6	9851	F3	9862	D6	9873	F5	9883	D5	9892	F7		
2706	E2	2860	E4	3873	E1	9802	G5	9823	C1	9832	G3	9842	B4	9852	G4	9863	C7	9874	F6	9884	F6	9893	F7		

Mainboard Componentside view

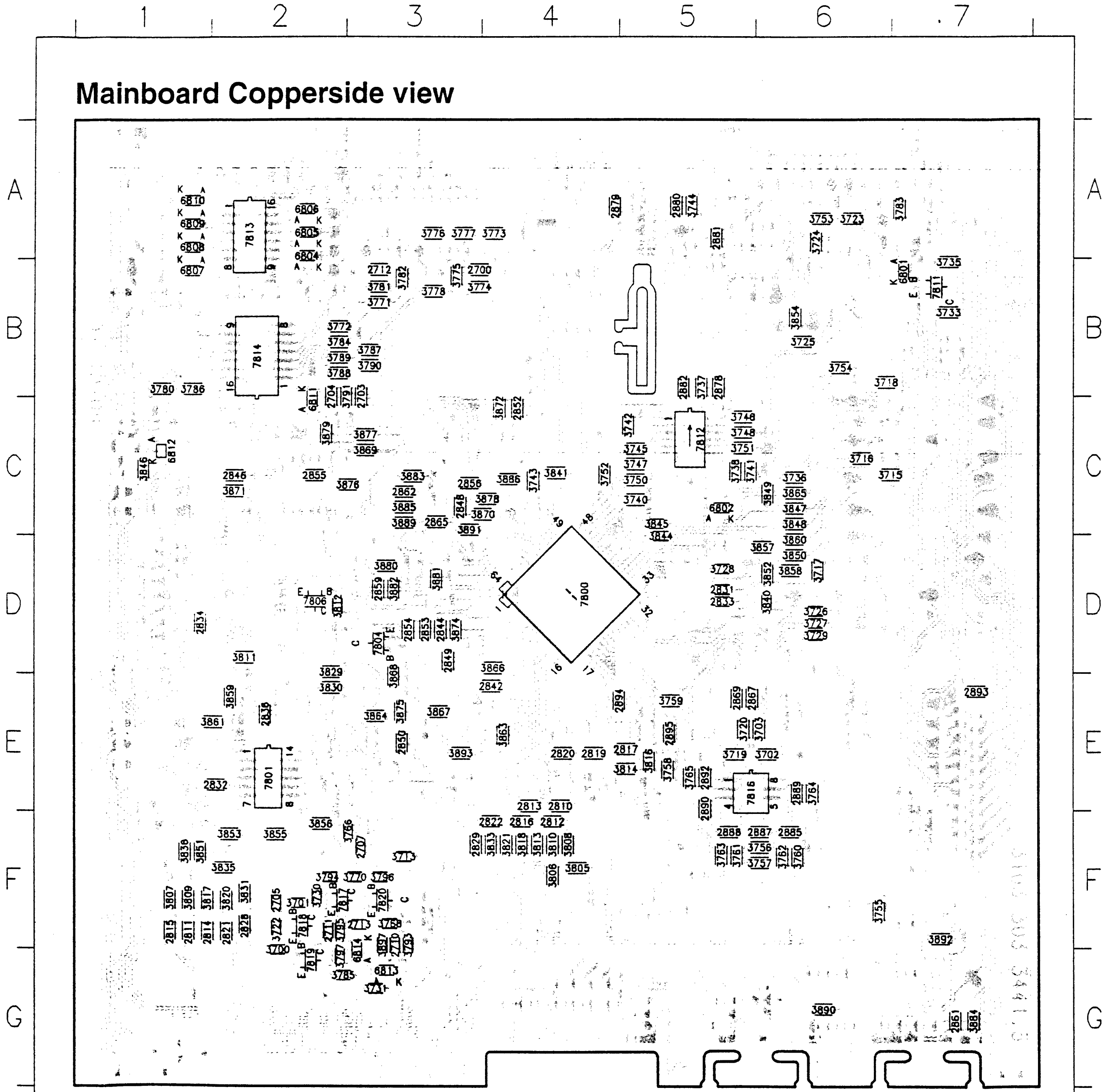

1
2
3
4
5
6
7
A
B
C
D
E
F
G
C800
1801
3888
3887
2863
7803
2864
9804
9842
9890
9855
2886
2891
9870
9809
9871
9808
1806
9826
9843
9889
9834
9896
9844
2839
9806
9894
9895
9823
9824
9825
9836
2830
2843
9845
2847
2845
1802
2818
2868
2866
9863
9864
9865
9837
3862
9888
9857
9856
1800
9858
9847
9838
9882
9883
9897
9898
9872
9877
9862
9887
9869
9886
9885
9821
9822
7802
3873
9827
2706
2851
2858
2860
9848
9849
9850
9880
9879
9839
9878
9866
9829
9831
9828
9830
9851
9859
9860
9807
9873
9874
9875
9876
9884
9841
9801
9840
9892
9893
9805
9891
3899
1804
9833
9832
1805
7815
3779
2701
9852
9802
5800
1803
9854
BASIC
CDR
22
23

This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

3DTC, Mainboard Layout stage .5 2001-10-23

2700	B3	2816	F4	2846	C2	2878	B5	3701	F2	3727	D6	3745	C5	3761	F5	3778	B3	3795	F2	3818	F4	3848	C6	3864	E3	3880	D3	6804	A2	7811	B7
2703	B3	2817	E5	2848	C3	2879	A4	3702	E6	3728	D5	3746	C5	3762	F6	3780	B1	3796	F3	3820	F2	3849	C6	3865	C6	3881	D3	6805	A2	7812	C5
2704	B2	2819	E4	2849	D3	2880	A5	3703	E6	3729	D6	3747	C5	3763	F5	3781	B3	3797	G2	3821	F4	3850	D6	3866	D4	3882	D3	6806	A2	7813	A2
2705	F2	2820	E4	2850	E3	2881	A5	3713	F3	3730	F2	3748	C5	3764	E6	3782	B3	3805	F4	3829	D2	3851	F1	3867	E3	3883	C3	6807	B1	7814	B2
2707	F3	2821	F2	2852	C4	2882	B5	3715	C6	3731	G3	3750	C5	3765	E5	3783	A7	3806	F4	3830	E2	3852	D6	3868	E3	3884	G7	6808	A1	7816	E5
2710	F3	2822	F4	2853	D3	2885	F6	3716	C6	3733	B7	3751	C5	3766	F3	3784	B2	3807	F1	3831	F2	3853	F2	3869	C3	3885	C3	6809	A1	7817	F2
2711	F2	2828	F2	2854	D3	2887	F6	3717	D6	3735	B7	3752	C4	3768	F3	3785	G2	3808	F4	3833	F4	3854	B6	3870	C4	3886	C4	6810	A1	7818	F2
2712	B3	2829	F3	2855	C2	2888	F5	3718	B6	3736	C6	3753	A6	3770	F3	3786	B1	3809	F1	3835	F2	3855	F2	3871	C2	3889	C3	6811	C2	7819	G2
2713	F3	2831	D5	2856	C3	2889	E6	3719	E5	3737	B5	3754	B6	3771	B3	3787	B3	3810	F4	3836	F1	3856	F2	3872	C4	3890	G6	6812	C1	7820	F3
2810	E4	2832	E2	2859	D3	2890	E5	3720	E5	3738	C5	3755	F6	3772	B2	3788	B2	3811	D2	3840	D6	3857	D6	3874	D3	3891	C3	6813	G3		
2811	F1	2833	D5	2861	G7	2892	E5	3722	F2	3740	C5	3756	F6	3773	A4	3789	B2	3812	D2	3841	C4	3858	D6	3875	E3	3892	F7	6814	G3		
2812	F4	2834	D1	2862	C3	2893	E7	3723	A6	3741	C5	3757	F6	3774	B3	3790	B3	3813	F4	3844	D5	3859	E2	3876	C3	3893	E3	7800	D4		
2813	E4	2836	E2	2865	C3	2894	E5	3724	A6	3742	C5	3758	E5	3775	B3	3791	B3	3814	E5	3845	C5	3860	D6	3877	C3	3897	F3	7801	E2		
2814	F1	2842	E4	2867	E5	2895	E5	3725	B6	3743	C4	3759	E5	3776	A3	3793	F3	3816	E5	3846	C1	3861	E2	3878	C4	6801	B7	7804	D3		
2815	F1	2844	D3	2869	E5	3700	G2	3726	D6	3744	A5	3760	F6	3777	A3	3794	F2	3817	F1	3847	C6	3863	E4	3879	C2	6802	C5	7806	D2		

Mainboard Copperside view


1
2
3
4
5
6
. 7
A
B
C
D
E
F
G
6810
6809
6808
6807
7813
6806
6805
6804
3776
3777
3773
2712
3782
3781
3771
3778
3775
2700
3774
2879
2880
3744
2881
3753
3723
3724
3783
6801
3735
3733
7814
3772
3784
3787
3789
3790
3788
3780
3786
6811
2704
2703
3791
2882
3737
2878
3854
3725
3754
3718
6812
3846
3879
3877
3869
3745
3747
3750
3740
3746
3748
3751
7812
3716
3715
2846
3871
2855
3876
3883
2862
3885
3889
2865
2856
3886
3870
3891
3841
6802
3736
3865
3847
3848
3860
3850
3858
3857
3728
2831
2833
3717
3726
3727
3729
3880
7806
7800
3859
3882
3811
3829
3830
3866
2842
3861
3864
3867
3893
2894
3759
3719
3702
2832
7801
2820
2819
2817
3814
7816
2889
3764
2813
2810
2822
2816
2812
2888
2887
2885
3853
3855
3856
3835
3805
3771
3770
3756
6813
6814
3785
3731
3890
3892
3884
2861

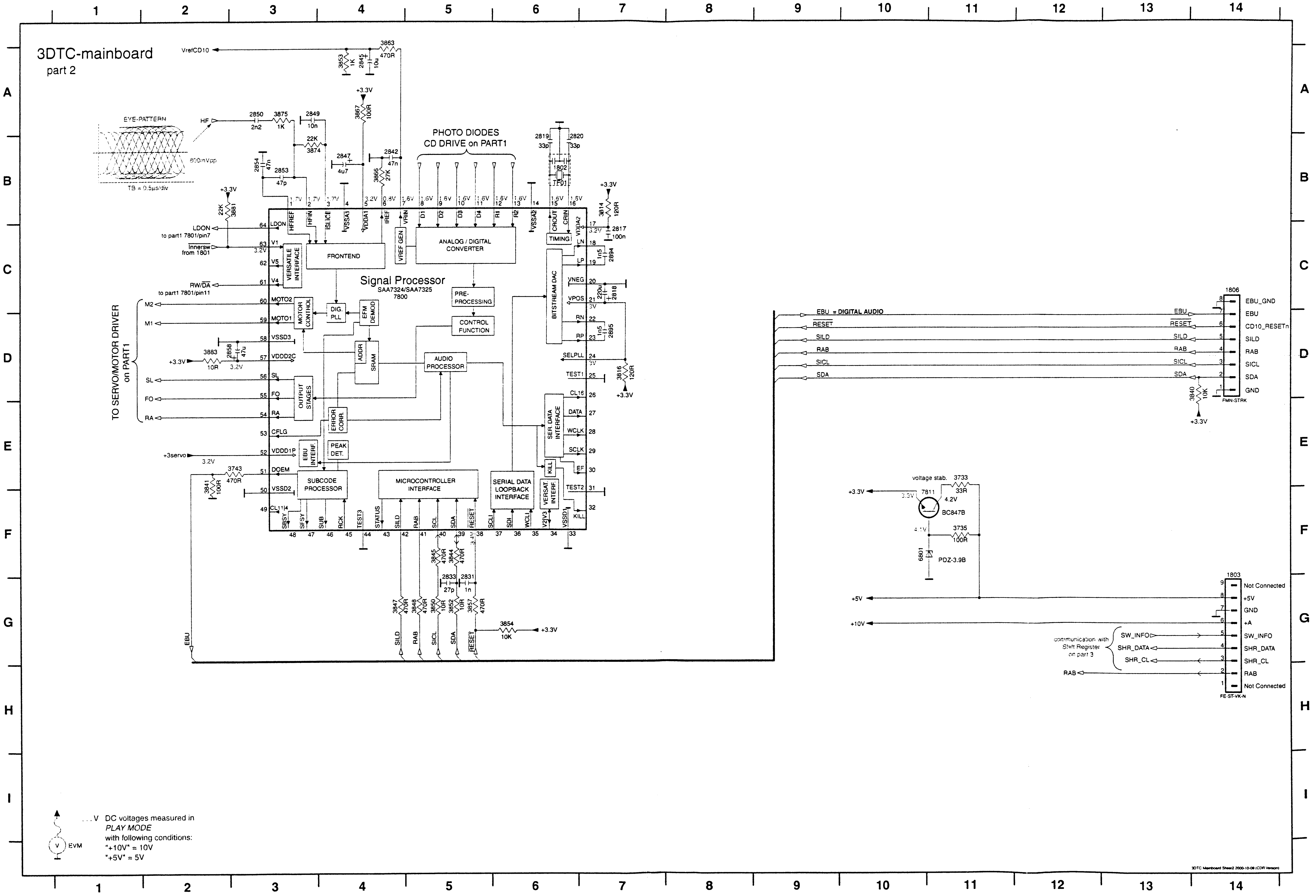
This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

3DTC, Mainboard Layout stage .5 2001-10-23

1802	B6	2818	C7	2833	G5	2847	B4	2854	B3	3733	F11	3816	D7	3845	F5	3863	A4	3874	B3	6801	F10
1803	G14	2819	B6	2842	B4	2849	A3	2858	D3	3735	F11	3840	E14	3853	A4	3866	B4	3875	A3	7800	C4
1806	C14	2820	B6	2844	A3	2850	A3	2894	C7	3743	E2	3841	E2	3854	G6	3867	A4	3881	B3	7804	A3
2817	C7	2831	G5	2845	A4	2853	B3	2895	D7	3814	B7	3844	F5	3857	G5	3868	A3	3883	D2	7811	F10

3DTC-mainboard

part 2

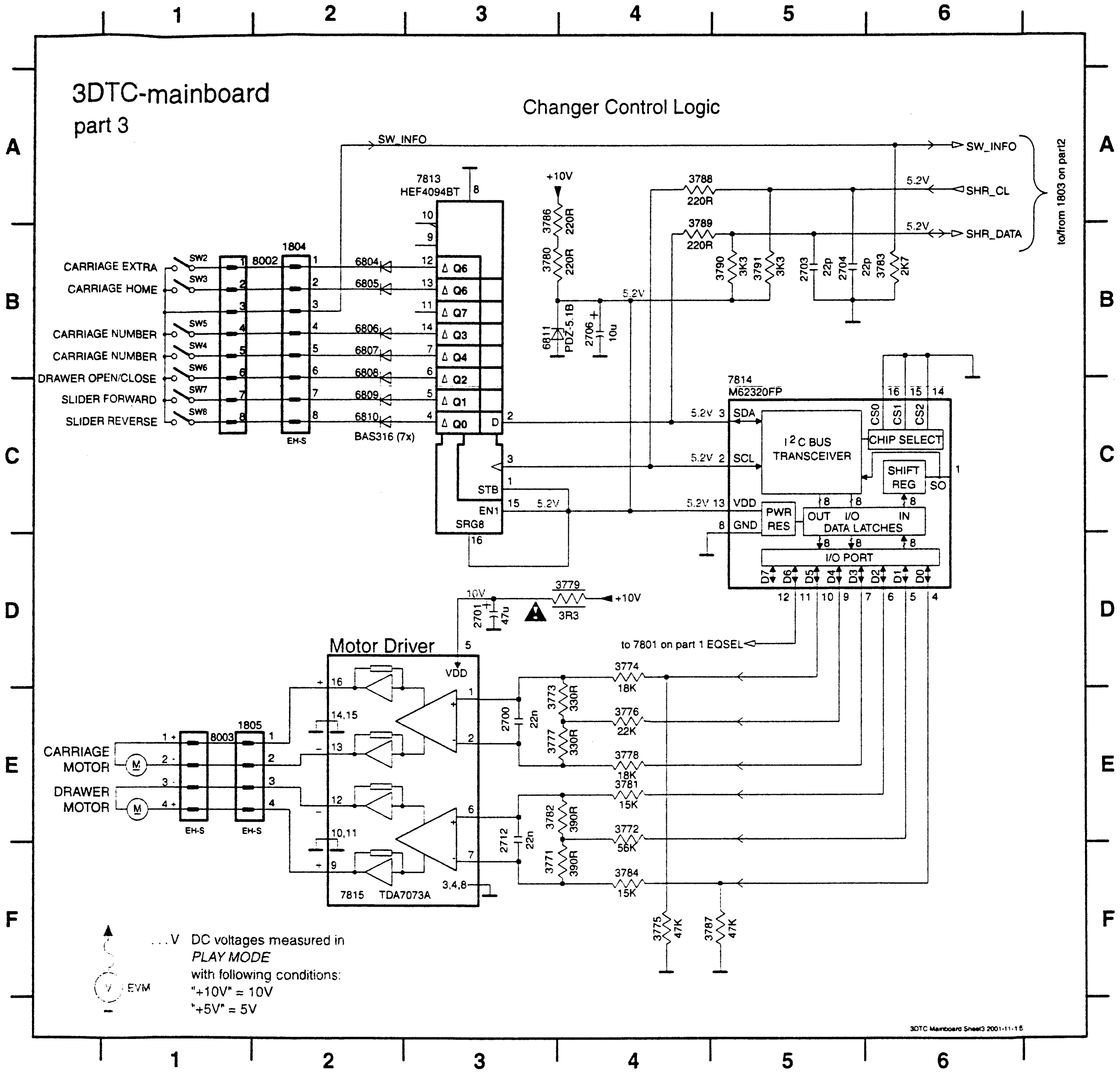


1
2
3
4
5
6
7
8
9
10
11
12
13
14
A
B
C
D
E
F
G
H
I
VrefCD10
3863
470R
3853
1K
2845
10u
+3.3V
3867
100R
EYE-PATTERN
800mVpp
TB = 0.5µs/div
HF
2850
2n2
3875
1K
2849
10n
22K
3874
2854
47n
2853
47p
2847
4u7
3866
27K
2842
47n
PHOTO DIODES
CD DRIVE on PART1
2819
33p
2820
33p
1802
TF01
+3.3V
3814
120R
2817
100n
2894
1n5
2818
220u
2895
1n5
3816
120R
22K
3881
LDON
to part1 7801/pin7
Innersw
from 1801
RW/DA
to part1 7801/pin11
M2
M1
TO SERVO/MOTOR DRIVER on PART1
3883
10R
2858
47u
SL
FO
RA
+3servo
3743
470R
3841
100R
EBU
Signal Processor
SAA7324/SAA7325
7800
FRONTEND
VERSATILE INTERFACE
VREF GEN
ANALOG / DIGITAL CONVERTER
TIMING
BITSTREAM DAC
PRE-PROCESSING
CONTROL FUNCTION
MOTOR CONTROL
DIG. PLL
EFM DEMOD
ADDR
SRAM
AUDIO PROCESSOR
OUTPUT STAGES
ERROR CORR.
PEAK DET.
EBU INTERF.
SUBCODE PROCESSOR
MICROCONTROLLER INTERFACE
SERIAL DATA LOOPBACK INTERFACE
VERSAT INTERF.
KILL
SER DATA INTERFACE
HFREF
HFIN
ISLICE
VSSA1
VDDA1
IREF
VRIN
D1
D2
D3
D4
R1
R2
VSSA2
CROUT
CRIN
VDDA2
LN
LP
VNEG
VPOS
RN
RP
SELPLL
TEST1
CL16
DATA
WCLK
SCLK
EF
TEST2
KILL
VSSD1
V2/V3
WCLI
SDI
SCLI
RESET
SDA
SCL
RAB
SILD
STATUS
TEST3
RCK
SUB
SFSY
SBSY
CL11/4
VSSD2
DOEM
VDDD1P
CFLG
RA
FO
SL
VDDD2C
VSSD3
MOTO1
MOTO2
V4
V5
V1
LDON
3845
470R
3844
470R
2833
27p
2831
1n
3847
470R
3848
470R
3850
10R
3852
10R
3857
470R
3854
10K
SILD
RAB
SICL
SDA
RESET
EBU = DIGITAL AUDIO
RESET
SILD
RAB
SICL
SDA
1806
EBU_GND
EBU
CD10_RESETn
SILD
RAB
SICL
SDA
GND
FMN-STRK
3840
10K
+3.3V
voltage stab.
3733
33R
7811
BC847B
4.2V
3.3V
4.1V
3735
100R
6801
PDZ-3.9B
+5V
+10V
1803
Not Connected
+5V
GND
+A
SW_INFO
SHR_DATA
SHR_CL
RAB
Not Connected
communication with Shift Register on part 3
SW_INFO
SHR_DATA
SHR_CL
RAB
FE ST-VK-N
EVM
3DTC Mainboard Sheet2 2000-10-08 (CDR Version)

...V DC voltages measured in
PLAY MODE
with following conditions:
"+10V" = 10V
"+5V" = 5V

Technical remarks

1804	B2	2703	B5	3771	F4	3775	F4	3779	D4	3783	B6	3788	A4	6804	B2	6808	B2	7813	A3
1805	E1	2704	B5	3772	E4	3776	E4	3780	B3	3784	F4	3789	B4	6805	B2	6809	C2	7814	C5
2700	E3	2706	B4	3773	E4	3777	E4	3781	E4	3786	B3	3790	B5	6806	B2	6810	C2	7815	F2
2701	D3	2712	E3	3774	D4	3778	E4	3782	E4	3787	F5	3791	B5	6807	B2	6811	B3		



3DTC-mainboard
part 3

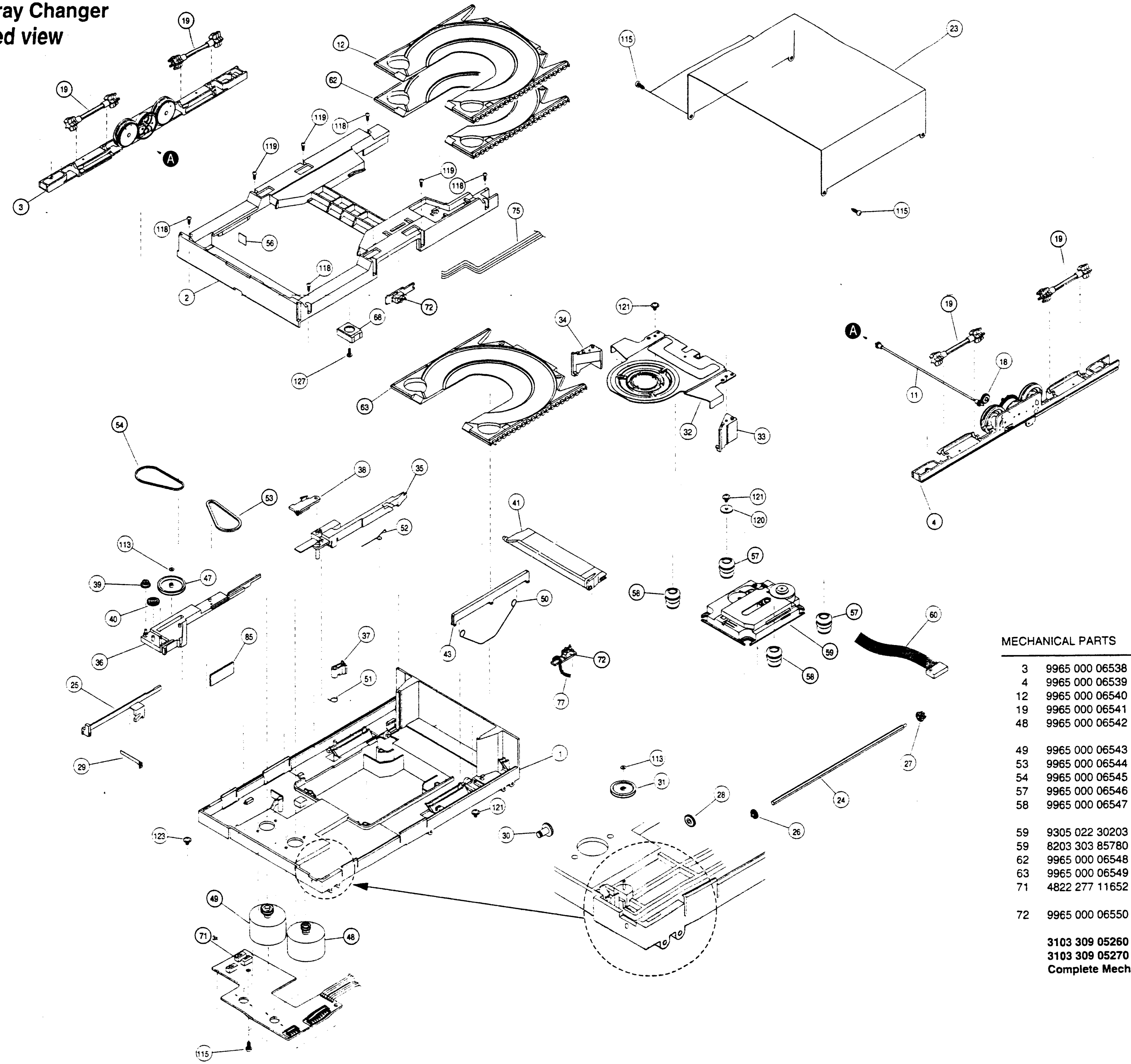
Changer Control Logic

Motor Driver

...V DC voltages measured in
PLAY MODE
with following conditions:
"+10V" = 10V
"+5V" = 5V

1
2
3
4
5
6
A
B
C
D
E
F
SW_INFO
CARRIAGE EXTRA
CARRIAGE HOME
CARRIAGE NUMBER
CARRIAGE NUMBER
DRAWER OPEN/CLOSE
SLIDER FORWARD
SLIDER REVERSE
SW2
SW3
SW5
SW4
SW6
SW7
SW8
8002
1804
EH-S
6804
6805
6806
6807
6808
6809
6810
BAS316 (7x)
7813
HEF4094BT
Q6
Q6
Q7
Q3
Q4
Q2
Q1
Q0
D
STB
EN1
SRG8
5.2V
+10V
3786
220R
3780
220R
6811
PDZ-5.1B
2706
10u
3788
220R
3789
220R
3790
3K3
3791
3K3
2703
22p
2704
22p
3783
2K7
SW_INFO
SHR_CL
SHR_DATA
to/from 1803 on part2
7814
M62320FP
SDA
SCL
VDD
GND
I²C BUS
TRANSCEIVER
CHIP SELECT
CS0
CS1
CS2
SHIFT
REG
SO
PWR
RES
OUT I/O IN
DATA LATCHES
I/O PORT
D7
D6
D5
D4
D3
D2
D1
D0
10V
2701
47u
3779
3R3
to 7801 on part 1 EQSEL
VDD
7815
TDA7073A
3,4,8
14,15
10,11
CARRIAGE MOTOR
DRAWER MOTOR
8003
1805
EH-S
2700
22n
2712
22n
3773
330R
3777
330R
3782
390R
3771
390R
3774
18K
3776
22K
3778
18K
3781
15K
3772
56K
3784
15K
3775
47K
3787
47K
EVM
3DTC Mainboard Sheet3 2001-11-15

3Disc Tray Changer
Exploded view


19
19
12
62
A
3
119
118
118
56
2
75
72
68
127
115
23
115
19
19
A
11
18
4
121
34
32
33
63
54
53
38
35
52
113
39
47
40
36
41
50
43
37
51
85
25
29
72
77
121
120
57
58
57
59
58
60
1
113
31
28
26
24
27
121
123
30
49
71
48
115

MECHANICAL PARTS

3	9965 000 06538	ASSY HOLDER LEFT
4	9965 000 06539	ASSY HOLDER RIGHT
12	9965 000 06540	ASSY CARRIAGE 1 (TOP)
19	9965 000 06541	ASSY GEAR STAR
48	9965 000 06542	ASSY MOTOR CARRIAGE
49	9965 000 06543	ASSY MOTOR DRAWER
53	9965 000 06544	BELT DRAWER
54	9965 000 06545	BELT CARRIAGE
57	9965 000 06546	DAMPER RUBBER REAR
58	9965 000 06547	DAMPER RUBBER FRONT
59	9305 022 30203	CD DRIVE VAM2202/03 (2x SPEED)
59	8203 303 85780	CD DRIVE VAM2204/03 (4x SPEED)
62	9965 000 06548	ASSY CARRIAGE 2 (MIDDLE)
63	9965 000 06549	ASSY CARRIAGE 3 (BOTTOM)
71	4822 277 11652	SWITCH (SW6-SW8)
72	9965 000 06550	SWITCH (SW2-SW5)
	3103 309 05260	**3DTC MECH. CMCJ-01-14(2xSPEED)**
	3103 309 05270	**3DTC MECH. CMCJ-01-15(4xSPEED)**

Complete Mechanic - CD Drive already included

ELECTRICAL PARTSLIST 3DTC MODULE CDR Version

MISCELLANEOUS

35	9305 022 30203	CD DRIVE VAM2202/03 (2x SPEED)
1800	4822 265 10925	FFC-CONNECTOR, 15P
1803	4822 265 11531	FFC-CONNECTOR, 9P
1806	*2422 025 16833*	*FFC-CONNECTOR, 8P*
8003	3103 308 92560	FLEX FOIL CABLE 15P, 80mm

CAPACITORS

2700 ©	4822 126 14494	22nF	10%	25V
2701	4822 124 40433	47µF	20%	25V
2703 ©	5322 122 32658	22pF	5%	50V
2704 ©	4822 122 33761	22pF	5%	50V
2706	4822 124 22833	10µF	20%	50V
2712 ©	4822 126 14494	22nF	10%	25V
2810 ©	4822 126 13883	220pF	5%	50V
2811 ©	4822 126 14241	330pF		50V
2812 ©	4822 126 13883	220pF	5%	50V
2813 ©	4822 126 13883	220pF	5%	50V
2814 ©	4822 126 13881	470pF	5%	50V
2815 ©	4822 126 14508	180pF	5%	50V
2816 ©	4822 126 13883	220pF	5%	50V
2817 ©	4822 126 14585	100nF	10%	50V
2818	4822 124 42383	220µF	20%	4V
2819 ©	5322 122 32659	33pF	5%	50V
2820 ©	5322 122 32659	33pF	5%	50V
2821 ©	4822 126 14508	180pF	5%	50V
2822 ©	4822 126 13883	220pF	5%	50V
2828 ©	4822 126 14508	180pF	5%	50V
2829 ©	4822 126 13883	220pF	5%	50V
2830	4822 124 40769	4,7µF	20%	100V
2831 ©	5322 126 11578	1nF	10%	63V
2832 ©	4822 126 12105	33nF	5%	63V
2833 ©	4822 126 11669	27pF	10%	50V
2834 ©	4822 126 13751	47nF	10%	50V
2836 ©	4822 126 13193	4,7nF	10%	63V
2839	4822 124 40769	4,7µF	20%	100V
2842 ©	4822 126 13751	47nF	10%	50V
2843	4822 124 40769	4,7µF	20%	100V
2844 ©	4822 122 33177	10nF	20%	50V
2845	4822 124 40248	10µF	20%	63V
2846 ©	4822 126 14238	2,2nF	10%	50V
2847	4822 124 40769	4,7µF	20%	100V
2848 ©	4822 126 14506	270pF	5%	50V
2849 ©	5322 122 34098	10nF	10%	50V
2850 ©	4822 126 14238	2,2nF	10%	50V
2851	4822 124 40433	47µF	20%	25V
2852 ©	3198 024 44730	47nF	5%	50V
2853 ©	4822 126 13692	47pF	1%	63V
2854 ©	4822 126 13751	47nF	10%	50V
2855 ©	4822 126 14247	1,5nF	10%	50V
2856 ©	4822 122 33216	270pF	5%	50V
2858	4822 124 12362	47µF	20%	4V
2859 ©	4822 122 33177	10nF	20%	50V
2860	4822 124 12362	47µF	20%	4V
2861 ©	4822 126 14585	100nF	10%	50V
2862 ©	5322 126 11583	10nF	10%	63V
2863	4822 124 40433	47µF	20%	25V
2864	5322 124 41948	0,47µF	20%	50V
2865 ©	3198 024 44730	47nF	5%	50V
2894 ©	4822 126 13344	1,5nF	5%	63V
2895 ©	4822 126 13344	1,5nF	5%	63V

RESISTORS

3733 ©	4822 051 30339	33Ω	5%	0,06W
3735 ©	4822 051 30101	100Ω	5%	0,06W
3743 ©	4822 051 30471	470Ω	5%	0,06W
3771 ©	4822 051 30391	390Ω	5%	0,062W
3772 ©	4822 051 30563	56kΩ	5%	0,06W
3773 ©	4822 051 30331	330Ω	5%	0,06W
3774 ©	4822 051 30183	18kΩ	5%	0,06W
3775 ©	4822 117 12925	47kΩ	1%	0,06W
3776 ©	4822 051 30223	22kΩ	5%	0,06W
3777 ©	4822 051 30331	330Ω	5%	0,06W
3778 ©	4822 051 30183	18kΩ	5%	0,06W
3779 ▲	4822 052 10338	3,3Ω		NFR25
3780 ©	4822 117 11503	220Ω	5%	0,1W
3781 ©	4822 051 30153	15kΩ	5%	0,06W
3782 ©	4822 051 30391	390Ω	5%	0,062W
3783 ©	4822 051 30272	2,7kΩ	5%	0,06W
3784 ©	4822 051 30153	15kΩ	5%	0,06W
3786 ©	4822 051 30221	220Ω	5%	0,06W
3787 ©	4822 117 10834	47kΩ	1%	0,1W
3788 ©	4822 051 30221	220Ω	5%	0,06W
3789 ©	4822 051 30221	220Ω	5%	0,06W
3790 ©	4822 051 20332	3,3kΩ	5%	0,06W
3791 ©	4822 051 20332	3,3kΩ	5%	0,06W
3807 ©	4822 051 30223	22kΩ	5%	0,06W
3808 ©	4822 051 30103	10kΩ	5%	0,06W
3809 ©	4822 051 30223	22kΩ	5%	0,06W
3810 ©	4822 051 30103	10kΩ	5%	0,06W
3811 ©	4822 117 12864	82kΩ	5%	0,1W
3812 ©	4822 051 30103	10kΩ	5%	0,06W
3813 ©	4822 051 30103	10kΩ	5%	0,06W
3814 ©	4822 051 20121	120Ω	5%	0,1W
3816 ©	4822 051 30121	120Ω	5%	0,06W
3817 ©	4822 051 20183	18kΩ	5%	0,1W
3818 ©	4822 051 30103	10kΩ	5%	0,06W
3820 ©	4822 117 11148	56kΩ	1%	0,1W
3821 ©	4822 051 30103	10kΩ	5%	0,06W
3829 ©	4822 051 30689	68Ω	5%	0,06W
3830 ©	4822 051 30689	68Ω	5%	0,06W
3831 ©	4822 051 30563	56kΩ	5%	0,06W
3833 ©	4822 051 30103	10kΩ	5%	0,06W
3835 ©	4822 051 30472	4,7kΩ	5%	0,06W
3836 ©	4822 051 20472	4,7kΩ	5%	0,1W
3840 ©	4822 117 10833	10kΩ	1%	0,1W
3841 ©	4822 051 30101	100Ω	5%	0,06W
3844 ©	4822 051 30471	470Ω	5%	0,06W
3845 ©	4822 051 30471	470Ω	5%	0,06W
3846 ©	4822 051 30472	4,7kΩ	5%	0,06W
3847 ©	4822 051 20471	470Ω	5%	0,1W
3848 ©	4822 051 20471	470Ω	5%	0,1W
3850 ©	4822 051 20109	10Ω	5%	0,1W
3851 ©	4822 117 12955	2,7kΩ	1%	0,1W
3852 ©	4822 051 30109	10Ω	5%	0,06W
3853 ©	4822 051 30102	1kΩ	5%	0,06W
3854 ©	4822 051 30103	10kΩ	5%	0,06W
3855 ©	4822 051 10102	1kΩ	2%	0,25W
3856 ©	4822 051 30103	10kΩ	5%	0,06W
3857 ©	4822 051 30471	470Ω	5%	0,06W
3859 ©	4822 117 13608	4,7Ω	5%	0,06W
3861 ©	4822 051 30153	15kΩ	5%	0,06W
3862 ▲	4822 052 10478	4,7Ω	5%	NFR
3863 ©	4822 051 20471	470Ω	5%	0,1W
3864 ©	4822 051 20101	100Ω	5%	0,1W
3866 ©	4822 051 20273	27kΩ	5%	0,1W
3867 ©	4822 051 20101	100Ω	5%	0,1W
3868 ©	4822 051 30472	4,7kΩ	5%	0,06W

ELECTRICAL PARTSLIST 3DTC MODULE CDR Version

RESISTORS

3869 ©	4822 051 30333	33kΩ	5%	0,06W
3870 ©	4822 117 12925	47kΩ	1%	0,06W
3871 ©	4822 051 30472	4,7kΩ	5%	0,06W
3872 ©	4822 051 30102	1kΩ	5%	0,06W
3873 ▲	4822 052 10228	2,2Ω	5%	0,33W
3874 ©	4822 051 30223	22kΩ	5%	0,06W
3875 ©	4822 051 20102	1kΩ	5%	0,1W
3876 ©	4822 051 30102	1kΩ	5%	0,06W
3877 ©	4822 051 30333	33kΩ	5%	0,06W
3878 ©	4822 117 12925	47kΩ	1%	0,06W
3879 ©	4822 051 30682	6,8kΩ	5%	0,06W
3880 ©	4822 051 30684	680kΩ	5%	0,06W
3881 ©	4822 051 20223	22kΩ	5%	0,1W
3882 ©	4822 117 10837	100kΩ	1%	0,1W
3883 ©	4822 051 30109	10Ω	5%	0,06W
3884 ©	4822 051 30472	4,7kΩ	5%	0,06W
3885 ©	4822 117 13632	100kΩ	1%	0,06W
3886 ©	4822 051 30339	33Ω	5%	0,06W
3887	4822 053 10228	2,2Ω	5%	1W
3888 ▲	4822 052 10228	2,2Ω	5%	0,33W
3889 ©	4822 051 30472	4,7kΩ	5%	0,06W
3890 ©	4822 051 30472	4,7kΩ	5%	0,06W
3891 ©	4822 117 13632	100kΩ	1%	0,06W
3892 ©	4822 117 11149	82kΩ	1%	0,1W
3899	4822 116 81154	2,2Ω	5%	0,5W

COILS

1802	2422 543 01068	RESONATOR 8MHz

DIODES

6801 ©	9322 129 34685	BZX284-C3V9
6804 ©	4822 130 11397	BAS316
6805 ©	4822 130 11397	BAS316
6806 ©	4822 130 11397	BAS316
6807 ©	4822 130 11397	BAS316
6808 ©	4822 130 11397	BAS316
6809 ©	4822 130 11397	BAS316
6810 ©	4822 130 11397	BAS316
6811 ©	9340 548 52115	BZX284-C5V1
6812 ©	9340 548 47115	PDZ3.3B

TRANSISTORS

7804 ©	5322 130 42755	BC847C
7806 ©	5322 130 42755	BC847C
7811 ©	5322 130 60159	BC846B

INTEGRATED CIRCUITS

7800 ©	9352 641 80557	SAA7324H/M2B, CD10 SIGNAL PROC
7801 ©	4822 209 17286	TZA1024T/N1, HF-AMPLIFIER
7802	4822 209 32852	TDA7073A/N2
7803	4822 209 32852	TDA7073A/N2
7813	5322 209 11306	HEF4094BT
7814 ©	4822 209 17345	M62320FP, I2C SHIFT REGISTER
7815	4822 209 32852	TDA7073A/N2

MAINS BOARD

TABLE OF CONTENTS

Brief introduction 11-1
Mains Socket - Circuit diagram & Component layout ... 11-1
Mains Board - Component layout 11-2
Mains Board - Circuit diagram 11-3
Electrical parts list 11-4

Brief introduction of the Mains Board

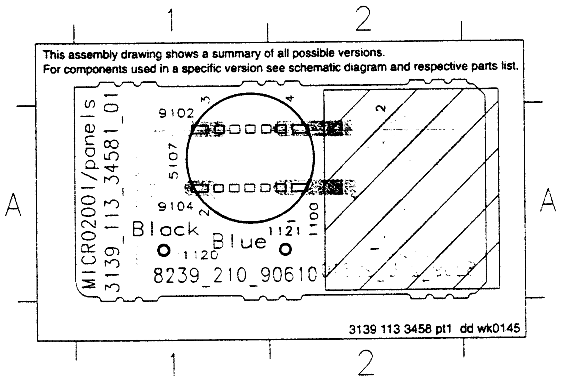
ECO Power
Standby Transformer 5100 provides the LPS supply to control the relay 1102, cutting of the Mains supply to the Mains transformer during the ECO Power (standby) mode.

The Mains transformer provides the following:

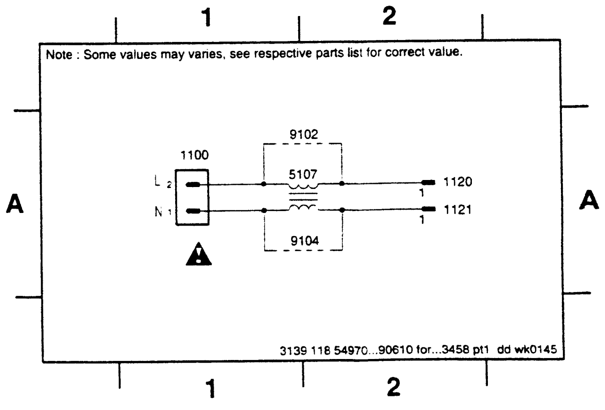
- AC supply (across F1 & F2) and -Vkk supply for the FTD display
- +A and +A/2 to the Main amplifier area and Regulator board

MAINS SOCKET - CIRCUIT DIAGRAM & COMPONENT LAYOUT

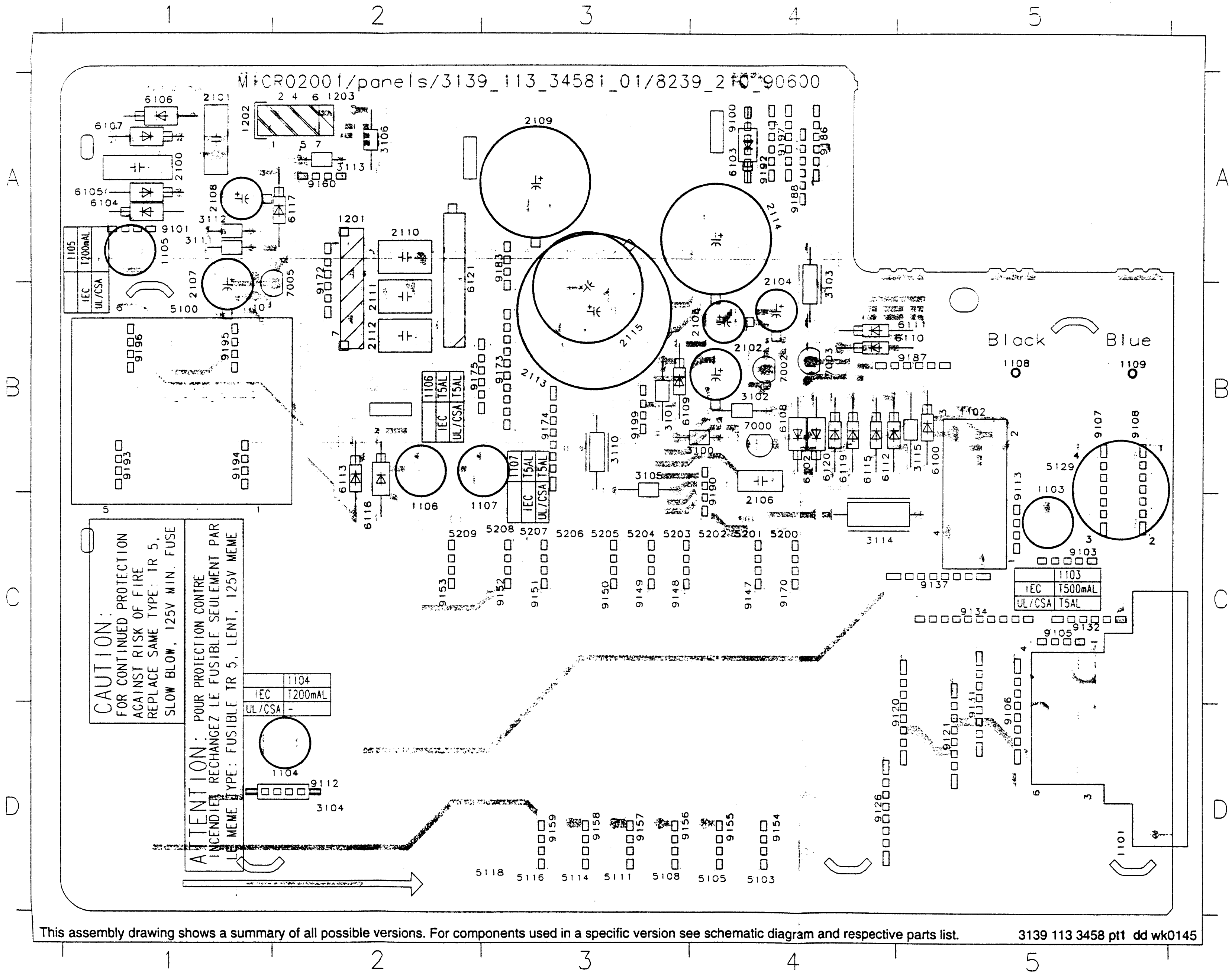
1100	A2	1121	A2	9102	A1
1120	A1	5107	A1	9104	A1


1
2
This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram and respective parts list.
A
A
9102
5107
9104
1100
1121
Black
Blue
1120
MICRO2001/panels
3139_113_34581_01
8239_210_90610
3139 113 3458 pt1 dd wk0145
1
2

1100	**A1**	**1120**	**A2**	**1121**	**A2**	**5107**	**A2**	**9102**	**A2**	**9104**	**A2**


1
2
Note : Some values may varies, see respective parts list for correct value.
A
A
1100
L 2
N 1
9102
5107
9104
1120
1121
1
1
3139 118 54970...90610 for...3458 pt1 dd wk0145
1
2

MAINS BOARD - COMPONENT LAYOUT


1
2
3
4
5
A
B
C
D
MICRO2001/panels/3139_113_34581_01/8239_210_90600
CAUTION:
FOR CONTINUED PROTECTION
AGAINST RISK OF FIRE
REPLACE SAME TYPE: TR 5,
SLOW BLOW, 125V MIN. FUSE
ATTENTION: POUR PROTECTION CONTRE
INCENDIE, RECHANGEZ LE FUSIBLE SEULEMENT PAR
LE MEME TYPE: FUSIBLE TR 5, LENT, 125V MEME
1105 T200mAL IEC UL/CSA
1106 T5AL T5AL IEC UL/CSA
1107 T5AL T5AL IEC UL/CSA
1104 IEC T200mAL UL/CSA -
1103 IEC T500mAL UL/CSA T5AL
Black
Blue
1108
1109
2109
2114
2115
2113
2110
2111
2112
2104
2106
2100
2101
2102
2107
2108
1201
1202
1203
1101
1103
1104
1106
1107
6121
7000
7002
7003
7005
5100
5129
5200 5201 5202 5203 5204 5205 5206 5207 5208 5209
5118 5116 5114 5111 5108 5105 5103
3114
3110
3105
3104
9112

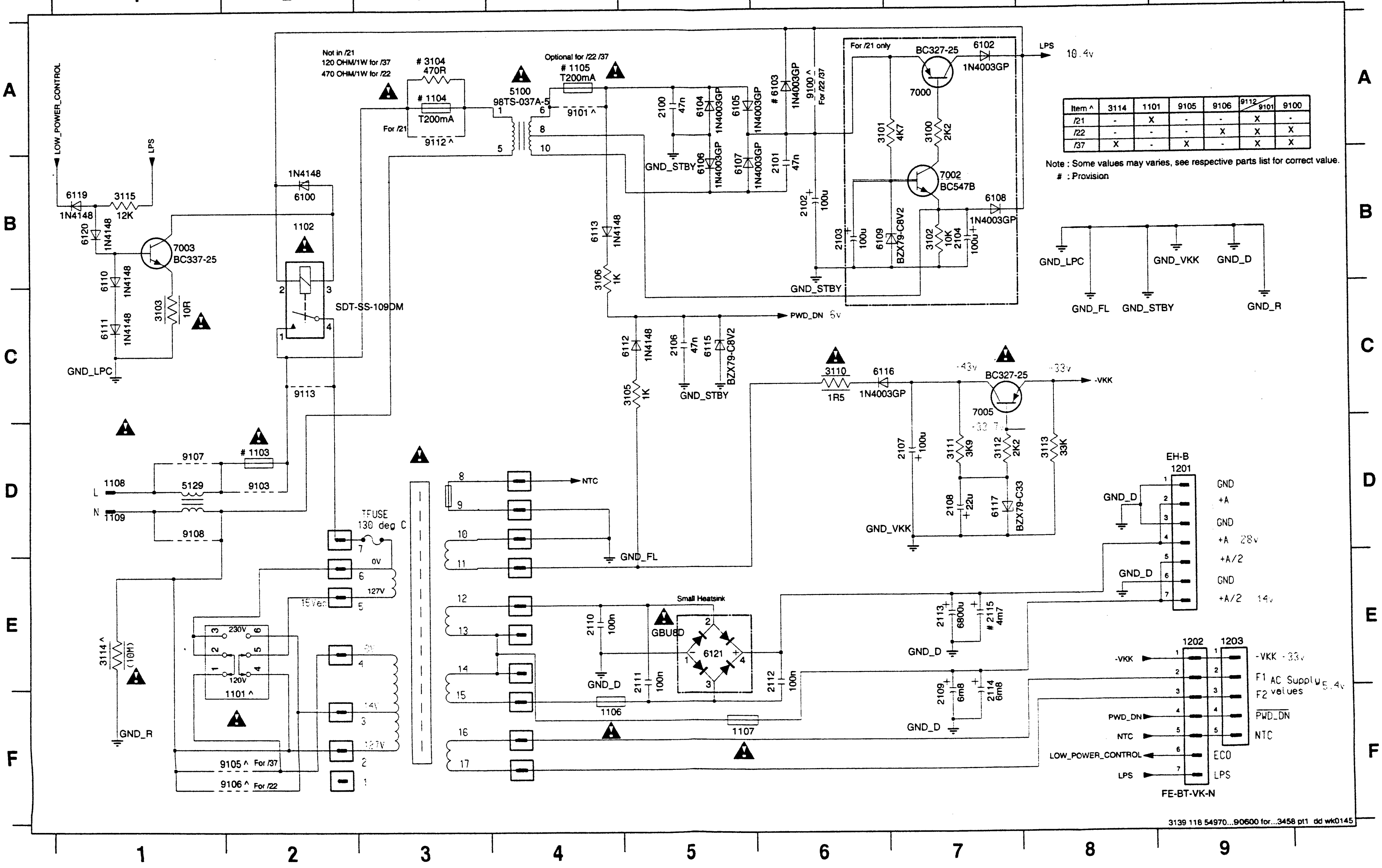
This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

3139 113 3458 pt1 dd wk0145

1101	D5
1102	B5
1103	B5
1104	D2
1105	A1
1106	C2
1107	C3
1108	B5
1109	B5
1201	A2
1202	A1
1203	A2
2100	A1
2101	A1
2102	B4
2103	B4
2104	A4
2106	C4
2107	B1
2108	A1
2109	A3
2110	A2
2111	B2
2112	B2
2113	B3
2114	A4
2115	B3
3100	B4
3101	B3
3102	B4
3103	B4
3104	D2
3105	B3
3106	A2
3110	B3
3111	A1
3112	A1
3113	A2
3114	C4
3115	B5
5100	B1
5103	D4
5105	D4
5108	D3
5111	D3
5114	D3
5116	D3
5118	D3
5129	B5
5200	C4
5201	C4
5202	C4
5203	C3
5204	C3
5205	C3
5206	C3
5207	C3
5208	C3
5209	C2
6100	B5
6102	B4
6103	A4
6104	A1
6105	A1
6106	A1
6107	A1
6108	B4
6109	B3
6110	B5
6111	B5
6112	B4
6113	B2
6115	B4
6116	C2
6117	A2
6119	B4
6120	B4
6121	A2
7000	B4
7002	B4
7003	B4
7005	B2
9100	A4
9101	A1
9103	C5
9105	C5
9106	D5
9107	B5
9108	B5
9112	D2
9113	B5
9120	D5
9121	D5
9126	D4
9131	D5
9132	C5
9134	C5
9137	C5
9147	C4
9148	C3
9149	C3
9150	C3
9151	C3
9152	C3
9153	C2
9154	D4
9155	D4
9156	D3
9157	D3
9158	D3
9159	D3
9160	A2
9170	C4
9172	A2
9173	B3
9174	B3
9175	B2
9183	A3
9186	A4
9187	B5
9188	A4
9190	B4
9192	A4
9193	B1
9194	B1
9195	B1
9196	B1
9197	A4
9199	B3

MAINS BOARD - CIRCUIT DIAGRAM

1101	F2
1102	B2
1103	D2
1104	A3
1105	A4
1106	F4
1107	F5
1108	D1
1109	D1
1201	D9
1202	E9
1203	E9
2100	A5
2101	B6
2102	B6
2103	B6
2104	B7
2106	C5
2107	D7
2108	D7
2109	F7
2110	E4
2111	E5
2112	E6
2113	E7
2114	F7
2115	E7
3100	A7
3101	A7
3102	B7
3103	C1
3104	A3
3105	C5
3106	B4
3110	C6
3111	D7
3112	D7
3113	D8
3114	E1
3115	B1
5100	A4
5129	D1
6100	B2
6102	A7
6103	A6
6104	A5
6105	A5
6106	B5
6107	B5
6108	B7
6109	B6
6110	B1
6111	C1
6112	C5
6113	B4
6115	C5
6116	C6
6117	D7
6119	B1
6120	B1
6121	E5
7000	A7
7002	B7
7003	B1
7005	C7
9100	A6
9101	A4
9103	D2
9105	F2
9106	F2
9107	D1
9108	D1
9112	A3
9113	C2


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
LOW_POWER_CONTROL
LPS
6119
1N4148
3115
12K
6120
1N4148
7003
BC337-25
6110
1N4148
6111
1N4148
3103
10R
GND_LPC
1N4148
6100
1102
2
3
1
4
SDT-SS-109DM
9113
Not in /21
120 OHM/1W for /37
470 OHM/1W for /22
# 3104
470R
# 1104
T200mA
For /21
9112 ^
5100
98TS-037A-5
1
5
6
8
10
Optional for /22 /37
# 1105
T200mA
9101 ^
2100
47n
6104
1N4003GP
6105
1N4003GP
# 6103
1N4003GP
9100 ^
For /22 /37
GND_STBY
6106
1N4003GP
6107
1N4003GP
2101
47n
2102
100u
2103
100u
6109
BZX79-C8V2
GND_STBY
For /21 only
BC327-25
6102
1N4003GP
7000
3101
4K7
3100
2K2
7002
BC547B
6108
1N4003GP
3102
10K
2104
100u
LPS
10.4v
6113
1N4148
3106
1K
PWD_DN
6v
6112
1N4148
2106
47n
6115
BZX79-C8V2
GND_STBY
3105
1K
3110
1R5
6116
1N4003GP
-43v
BC327-25
-33v
-VKK
7005
-32.7v
2107
100u
3111
3K9
3112
2K2
3113
33K
2108
22u
6117
BZX79-C33
GND_VKK
GND_LPC
GND_VKK
GND_D
GND_FL
GND_STBY
GND_R
9107
# 1103
1108
L
5129
9103
N
1109
9108
TFUSE
130 deg C
7
0V
6
127V
15Vac
5
4
0V
14V
3
127V
2
1
3114 ^
(10M)
GND_R
230V
3
6
2
5
1
4
120V
1101 ^
9105 ^ For /37
9106 ^ For /22
8
NTC
9
10
11
GND_FL
12
13
14
15
16
17
Small Heatsink
2110
100n
GBU8D
6121
GND_D
2111
100n
2112
100n
1106
1107
2113
6800u
# 2115
4m7
GND_D
2109
6m8
2114
6m8
GND_D
EH-B
1201
GND_D
GND
+A
GND
+A 28v
+A/2
GND_D
GND
+A/2 14v
1202
1203
-VKK
-VKK -33v
F1 AC Supply values
F2
5.4v
PWD_DN
NTC
NTC
LOW_POWER_CONTROL
ECO
LPS
LPS
FE-BT-VK-N
3139 118 54970...90600 for...3458 pt1 dd wk0145

Item ^	3114	1101	9105	9106	9112 / 9101	9100
/21	-	X	-	-	X	-
/22	-	-	-	X	X	X
/37	X	-	X	-	X	X

Note : Some values may varies, see respective parts list for correct value.
# : Provision

ELECTRICAL PARTS LIST - MAINS BOARD

MISCELLANEOUS

1100	4822 265 31015	⚠	Mains Socket	/22
1100	2422 030 00328	⚠	Mains Socket	/37
1102	4822 280 10382	⚠	Relay	/22
1106	4822 071 55002	⚠	Fuse T5A	
1107	4822 071 55002	⚠	Fuse T5A	
1202	4822 267 10953		Flex Connector 7P	/22
1203	4822 267 10954		Flex Connector 5P	/37

CAPACITORS

2100	4822 122 33449		47nF 30% 50V	/22
2101	4822 122 33449		47nF 30% 50V	/22
2102	4822 124 40255		100uF 20% 63V	/22
2106	4822 121 43526		47nF 5% 250V	
2107	4822 124 40255		100uF 20% 63V	
2108	4822 124 81151		22uF 50V	
2109	4822 124 12328		6800uF 25V	
2110	5322 121 42386		100nF 5% 63V	
2111	5322 121 42386		100nF 5% 63V	
2112	5322 121 42386		100nF 5% 63V	
2113	2022 020 00647		6800uF 20% 35V	
2114	4822 124 12328		6800uF 25V	

RESISTORS

3103	4822 052 10109	⚠	10R 5% 0,33W	/22
3105	4822 050 11002		1k 1% 0,4W	
3106	4822 050 11002		1k 1% 0,4W	/22
3110	4822 117 12148	⚠	1R5 5% 0,33W	
3111	4822 116 52276		3k9 5% 0,5W	
3112	4822 116 52256		2k2 5% 0,5W	
3113	4822 050 23303		33k 1% 0,6W	
3114	4822 053 21106	⚠	10M 5% 0,5W	/37
3115	4822 116 52238		12k 5% 0,5W	/22

COILS & FILTERS

5100	3103 308 30610	⚠	Standby Transformer	/22
5107	4822 157 11832		400uH 3A	/22
5129	4822 157 11832		400uH 3A	/22

DIODES

6100	4822 130 30621		1N4148	/22
6104	4822 130 31878		1N4003G	/22
6105	4822 130 31878		1N4003G	/22
6106	4822 130 31878		1N4003G	/22
6107	4822 130 31878		1N4003G	/22
6110	4822 130 30621		1N4148	/22
6111	4822 130 30621		1N4148	/22
6112	4822 130 30621		1N4148	
6113	4822 130 30621		1N4148	/22
6115	4822 130 34382		BZX79-C8V2	
6116	4822 130 31878		1N4003G	
6117	4822 130 34142		BZX79-C33	
6119	4822 130 30621		1N4148	/22
6120	4822 130 30621		1N4148	/22
6121	4822 130 11139	⚠	GBU8D	

TRANSISTORS & INTEGRATED CIRCUITS

7003	4822 130 40981		BC337-25	/22
7005	4822 130 41246	⚠	BC327-25	

Note : Only the parts mentioned in this list are normal service spare parts.

COMBI & REGULATOR BOARDS

TABLE OF CONTENTS

Brief Introduction of the Regulator & Combi Boards 12-1
Regulator Board - Layouts 12-2
Regulator Board - Circuit diagram 12-3
Combi Board - Chip layout 12-4
Combi Board - Component layout 12-5
Combi Circuit - Power Amplifier part 12-6
Combi Circuit - Source Select & Sound Control part 12-7
Combi Circuit - Headphone Amp. & Sub-woofer out part 12-8
Combi Circuit - Connector & Digital out part 12-9
Electrical parts list 12-10

Brief introduction of the Regulator Board

The regulator board provides the following:
a) 12V supply: +12V_A and +12V_M derived from the +A supply
b) 5,6V and 5V supply: +5V6 and 5V_VCD derived from the +A/2 supply

Brief introduction of the Combi Board

1. Source selection & Sound control
   Audio Processor IC 7550 (TDA7468D) provides the source selection and sound control features via the I2C bus (I2C_CLK and I2C_DATA lines).

2. Line out
   Line out is taken directly from the Audio Processor IC 7550. Muting is done via Transistors 7500, 7501 and 7508.

3. Pre-amplifier
   IC7510 (NJM4556AM) provides pre-amplification of the output signals from the Audio Processor IC 7550. Muting of audio signals to Power Amplifier IC 7200 during Headphone application and Source switching is done via transistors 7514, 7515, 7540 and 7541

4. Headphone and Sub-woofer outputs
   The headphone and Sub-woofer output is taken from the pre-amplifier out. Muting of these outputs are done via transistors 7511, 7512, 7522 and 7523.

5. Power Amplifier
   IC 7200 (AN7125) is used as Power amplifier. It function as Class G amplifier together with transistor 7204 (BDW94C) which switches the supply between supply source +A and +A/2.

6. Protection Circuit
   Transistors 7201, 7202 and 7203 provides protection against:
   - short-circuit of speaker terminals
   - short-circuit of speaker terminals to ground

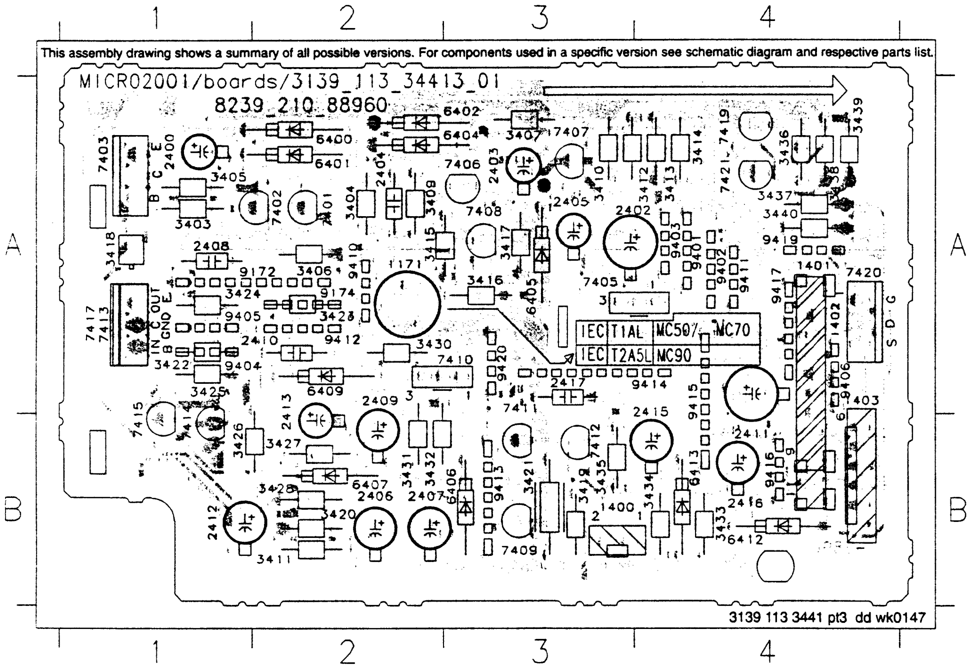
7. Digital out buffer
   IC 7525 (74LVU04D) act as buffer to boost the digital output level

8. I/O Expander
   I/O Expander IC 7526 (M62320FP) converts the I2C bus (I2C_CLK and I2C_DATA lines) into additional control lines.

9. +5V6_CON supply
   IC 7529 (MC78L05) provides the necessary supply to power µProcessor IC during ECO Power mode.

REGULATOR BOARD - COMPONENT SIDE VIEW

1171	A2	2408	A1	3406	A2	3419	B3	3432	B2	6404	A3	7407	A3	7421	A4	9413	B3
1400	B3	2409	A2	3407	A3	3420	B2	3433	B4	6405	A3	7408	A3	9172	A2	9414	A4
1401	A4	2410	A2	3409	A2	3421	B3	3434	B4	6406	B3	7409	B3	9174	A2	9415	A4
1402	A4	2411	B4	3410	A3	3422	A1	3435	B3	6407	B2	7410	A3	9401	A4	9416	B4
1403	A4	2412	B1	3411	B2	3423	A2	3436	A4	6409	A2	7411	A3	9402	A4	9417	A4
2400	A1	2413	A2	3412	A4	3424	A1	3437	A4	6412	B4	7412	B3	9403	A4	9419	A4
2402	A3	2415	A4	3413	A4	3425	A1	3438	A4	6413	B4	7413	A1	9404	A1	9420	A3
2403	A3	2416	B4	3414	A4	3426	B1	3439	A4	7401	A2	7414	B1	9405	A1		
2404	A2	2417	A3	3415	A2	3427	B2	3440	A4	7402	A2	7415	B1	9406	A4		
2405	A3	3403	A1	3416	A3	3428	B2	6400	A2	7403	A1	7417	A1	9410	A2		
2406	B2	3404	A2	3417	A3	3430	A2	6401	A2	7405	A3	7419	A4	9411	A4		
2407	B2	3405	A1	3418	A1	3431	B2	6402	A3	7406	A3	7420	A4	9412	A2		

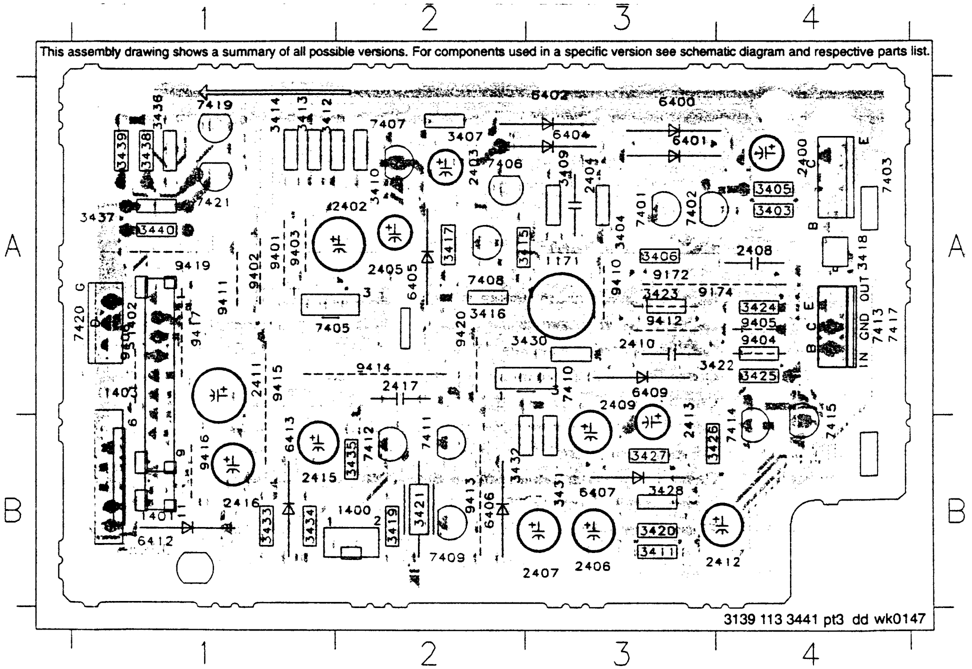


This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

3139 113 3441 pt3 dd wk0147

REGULATOR BOARD - COPPER SIDE VIEW

1171	A3	2408	A4	3406	A3	3419	B2	3432	B3	6404	A2	7407	A2	7421	A1	9413	B2
1400	B2	2409	A3	3407	A2	3420	B3	3433	B1	6405	A2	7408	A2	9172	A3	9414	A1
1401	A1	2410	A3	3409	A3	3421	B2	3434	B1	6406	B2	7409	B2	9174	A3	9415	A1
1402	A1	2411	B1	3410	A2	3422	A4	3435	B2	6407	B3	7410	A2	9401	A1	9416	B1
1403	A1	2412	B4	3411	B3	3423	A3	3436	A1	6409	A3	7411	A2	9402	A1	9417	A1
2400	A4	2413	A3	3412	A1	3424	A4	3437	A1	6412	B1	7412	B2	9403	A1	9419	A1
2402	A2	2415	A1	3413	A1	3425	A4	3438	A1	6413	B1	7413	A4	9404	A4	9420	A2
2403	A2	2416	B1	3414	A1	3426	B4	3439	A1	7401	A3	7414	B4	9405	A4		
2404	A3	2417	A2	3415	A3	3427	B3	3440	A1	7402	A3	7415	B4	9406	A1		
2405	A2	3403	A4	3416	A2	3428	B3	6400	A3	7403	A4	7417	A4	9410	A3		
2406	B3	3404	A3	3417	A2	3430	A3	6401	A3	7405	A2	7419	A1	9411	A1		
2407	B3	3405	A4	3418	A4	3431	B3	6402	A2	7406	A2	7420	A1	9412	A3		

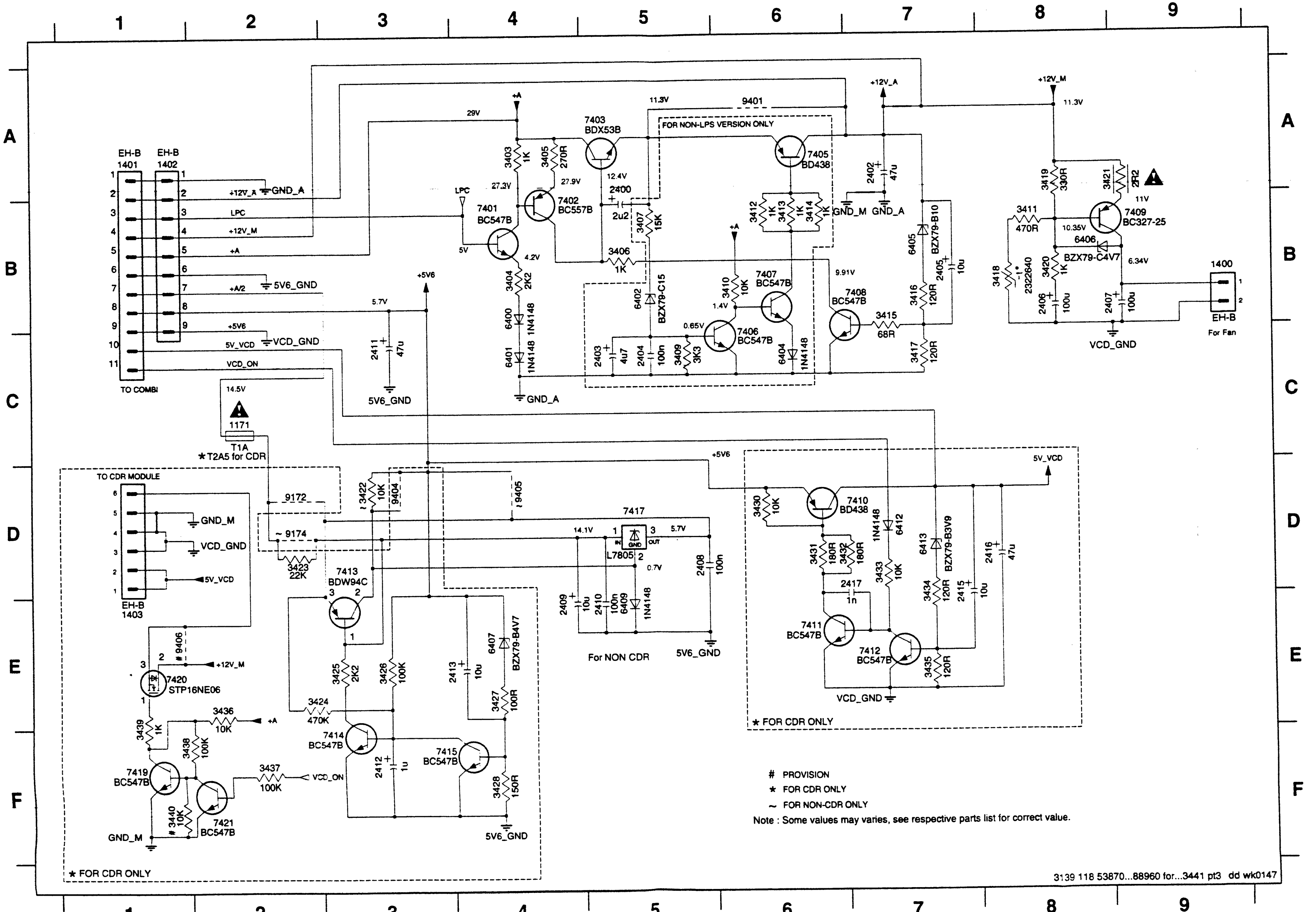


This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

3139 113 3441 pt3 dd wk0147

REGULATOR BOARD - CIRCUIT DIAGRAM

1171	C2
1400	*B9*
1401	A1
1402	A1
1403	E1
2400	*A5*
2402	A7
2403	C5
2404	C5
2405	*B7*
2406	B8
2407	B9
2408	D5
2409	*E4*
2410	E5
2411	C3
2412	F3
2413	*E4*
2415	D7
2416	D8
2417	D7
3403	*A4*
3404	B4
3405	A4
3406	B5
3407	*B5*
3409	C5
3410	B6
3411	B8
3412	*B6*
3413	B6
3414	B6
3415	B7
3416	*B7*
3417	C7
3418	B8
3419	A8
3420	*B8*
3421	A9
3422	D3
3423	D2
3424	*E2*
3425	E3
3426	E3
3427	E4
3428	*F4*
3430	D6
3431	D6
3432	D6
3433	*D7*
3434	D7
3435	E7
3436	E2
3437	*F2*
3438	F1
3439	E1
3440	F1
6400	*B4*
6401	C4
6402	B5
6404	C6
6405	*B7*
6406	B8
6407	E4
6409	E5
6412	*D7*
6413	D7
7401	B4
7402	A4
7403	*A5*
7405	A6
7406	C6
7407	B6
7408	*B7*
7409	B9
7410	D7
7411	E6
7412	*E7*
7413	D3
7414	F3
7415	F4
7417	*D5*
7419	F1
7420	E1
7421	F2
9172	*D2*
9174	D2
9401	A6
9404	D3
9405	*D4*
9406	E1



EH-B 1401
EH-B 1402
TO COMBI
+12V_A
GND_A
LPC
+12V_M
+A
5V6_GND
+A/2
+5V6
5V_VCD
VCD_GND
VCD_ON
29V
7403 BDX53B
3403 1K
3405 270R
7402 BC557B
7401 BC547B
3404 2K2
6400 1N4148
6401 1N4148
2411 47u
2400 2u2
3406 1K
3407 15K
6402 BZX79-C15
2403 4u7
2404 100n
3409 3K3
7406 BC547B
3410 10K
7407 BC547B
6404 1N4148
FOR NON-LPS VERSION ONLY
9401
7405 BD438
3412 1K
3413 1K
3414 1K
GND_M
7408 BC547B
3415 68R
3416 120R
3417 120R
2402 47u
6405 BZX79-B10
2405 10u
+12V_M
11.3V
3419 330R
3421 2R2
3411 470R
7409 BC327-25
6406 BZX79-C4V7
3418 2322640
3420 1K
2406 100u
2407 100u
1400 EH-B For Fan
1171 T1A
★T2A5 for CDR
14.5V
TO CDR MODULE
EH-B 1403
9172
9174
3423 22K
3422 10K
9404
9405
7417 L7805
2408 100n
2409 10u
2410 100n
6409 1N4148
For NON CDR
7413 BDW94C
3425 2K2
3426 100K
3424 470K
7414 BC547B
2412 1u
7415 BC547B
2413 10u
6407 BZX79-B4V7
3427 100R
3428 150R
9406
7420 STP16NE06
3439 1K
3436 10K
3438 100K
3437 100K
7419 BC547B
7421 BC547B
3440 10K
7410 BD438
3430 10K
3431 180R
3432 180R
2417 1n
7411 BC547B
7412 BC547B
6412 1N4148
3433 10K
6413 BZX79-B3V9
3434 120R
2415 10u
2416 47u
3435 120R
★ FOR CDR ONLY

# PROVISION

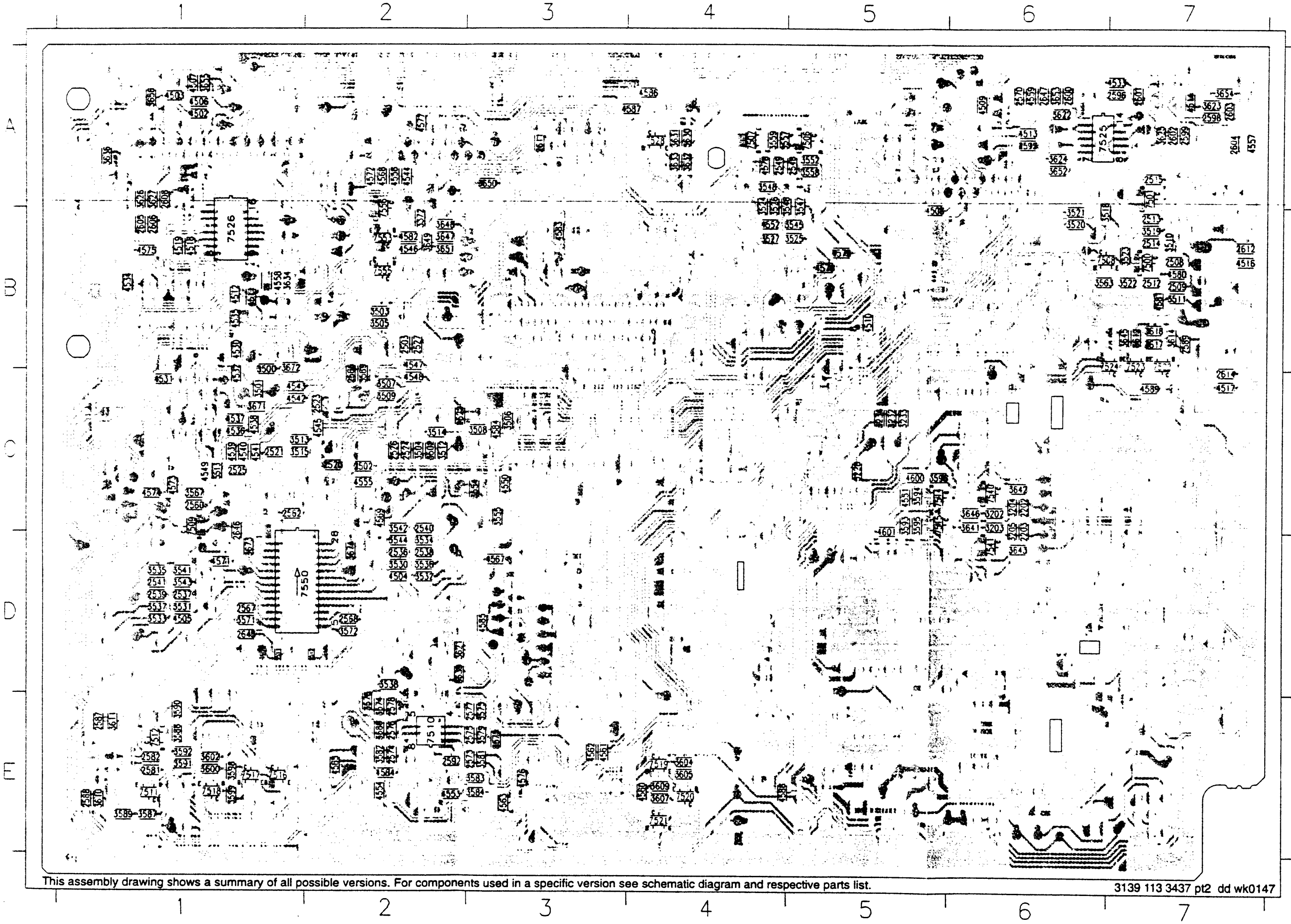
★ FOR CDR ONLY

~ FOR NON-CDR ONLY

Note : Some values may varies, see respective parts list for correct value.

3139 118 53870...88960 for...3441 pt3 dd wk0147

COMBI BOARD - CHIP LAYOUT

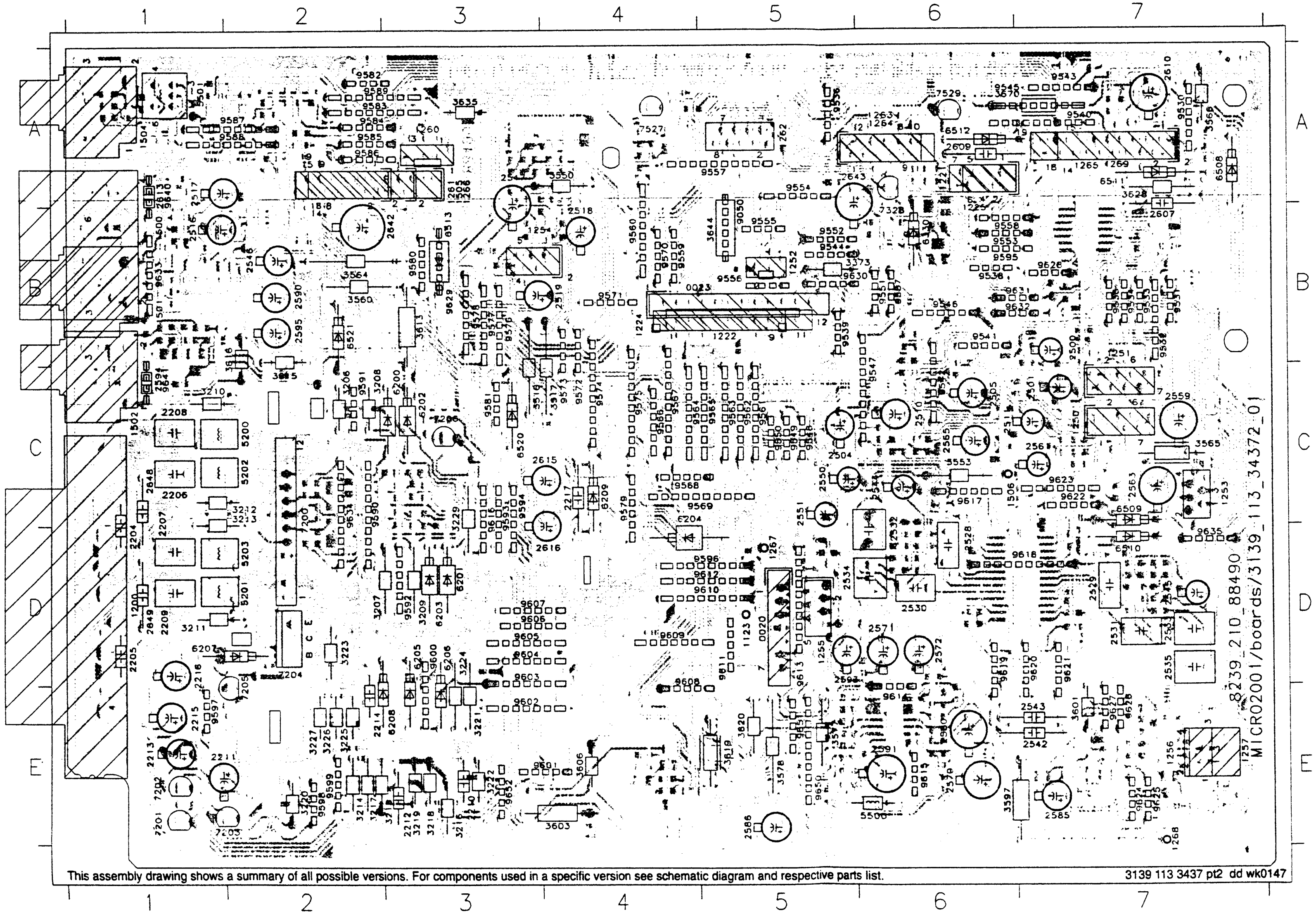


This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

3139 113 3437 pt2 dd wk0147

2202	C6	3504	C2	3605	E4	4547	B2
2203	C6	3505	B2	3607	E4	4548	C2
2502	C2	3506	C3	3609	E4	4549	C1
2503	B2	3507	C2	3610	E1	4550	C3
2508	B7	3508	C3	3611	E1	4551	C5
2509	B7	3509	C2	3612	B7	4552	B4
2512	B7	3510	B7	3614	B7	4553	E2
2513	B7	3511	B7	3617	B7	4554	E2
2514	B7	3512	C2	3618	B7	4555	C2
2515	A7	3513	C1	3621	D2	4556	A2
2520	C2	3514	C2	3622	A6	4557	A7
2521	C1	3515	C1	3623	A7	4558	B1
2522	C2	3518	B6	3624	A6	4559	A6
2523	C2	3519	B7	3625	A7	4560	E4
2524	C2	3520	B6	3626	A1	4561	E3
2525	C1	3521	B6	3627	A1	4562	E3
2526	C2	3522	B7	3630	A4	4563	E3
2527	B2	3523	B7	3631	A4	4564	E2
2536	D2	3524	A4	3632	A4	4565	E2
2537	D1	3525	B5	3633	A4	4567	D3
2538	D2	3526	A4	3634	B1	4568	A2
2539	D1	3527	B4	3636	A1	4569	C2
2540	C2	3530	D2	3641	C6	4570	B5
2541	D1	3531	D1	3642	C6	4571	D1
2548	A5	3532	D2	3643	D6	4572	A2
2549	A4	3533	D1	3645	B7	4573	C1
2560	C1	3534	D2	3646	C6	4574	C1
2562	C1	3535	D1	3647	B2	4575	B1
2566	C2	3536	D2	3648	B2	4576	E3
2567	D1	3537	D1	3649	B2	4577	A2
2568	D2	3538	D2	3650	A3	4578	A4
2570	A6	3539	D2	3651	B2	4579	B5
2573	E3	3541	D1	3652	A6	4580	B7
2574	E2	3542	C2	3653	A6	4581	B7
2575	E3	3543	D1	3654	A7	4582	B2
2576	E2	3544	D2	3655	A1	4583	B3
2577	E3	3545	B5	3656	A1	4584	C3
2578	E2	3546	A4	3671	C1	4585	D3
2581	E1	3547	A5	3672	B1	4586	A4
2582	E1	3548	A4	3673	D1	4587	A4
2587	E1	3552	A5	3674	D2	4588	E4
2588	E1	3554	C3	4502	A1	4589	C7
2589	B7	3555	C3	4503	A1	4600	C5
2592	E2	3557	A4	4504	D2	4601	C5
2596	A7	3558	A5	4505	D1	5511	D1
2597	A6	3559	A4	4506	A1	5512	D2
2598	A7	3563	B6	4507	A1	5513	C1
2599	A7	3567	C1	4508	B5	7500	B7
2600	A6	3569	C2	4509	A6	7501	A7
2601	A7	3571	D1	4510	B5	7506	A5
2602	A7	3572	D2	4511	B1	7507	A4
2603	A7	3573	E3	4512	B1	7508	B6
2604	A7	3574	E2	4513	A6	7509	C1
2605	B1	3575	E3	4514	A7	7510	E2
2606	B1	3576	E2	4515	A6	7511	E1
2608	A1	3579	E3	4516	B7	7512	E1
2611	A3	3580	E2	4517	C7	7514	C5
2612	B7	3581	E3	4518	B1	7515	C5
2614	C7	3582	E2	4519	B1	7516	E1
2645	D1	3583	E3	4530	B1	7517	E1
2646	C1	3584	E3	4531	C1	7518	E1
2647	A6	3587	E1	4532	C1	7519	E4
2650	E4	3588	E1	4533	A7	7520	E4
3202	C6	3589	E1	4534	B1	7521	E4
3203	C6	3590	E1	4535	B1	7522	B7
3204	C6	3591	E1	4536	C1	7523	B7
3205	C6	3592	E1	4537	C1	7524	B7
3228	C5	3593	C5	4538	C1	7525	A6
3232	C5	3594	C5	4539	C1	7526	B1
3233	C5	3595	C5	4540	C1	7528	A4
3234	C5	3596	C5	4541	C1	7540	C6
3372	B2	3598	E1	4542	C1	7541	D6
3500	C1	3599	E1	4543	C1	7550	D2
3501	C1	3600	E1	4544	A2	7553	B2
3502	C2	3602	E1	4545	C2	7555	B2
3503	B2	3604	E4	4546	B2	7556	B2

COMBI BOARD - COMPONENT LAYOUT



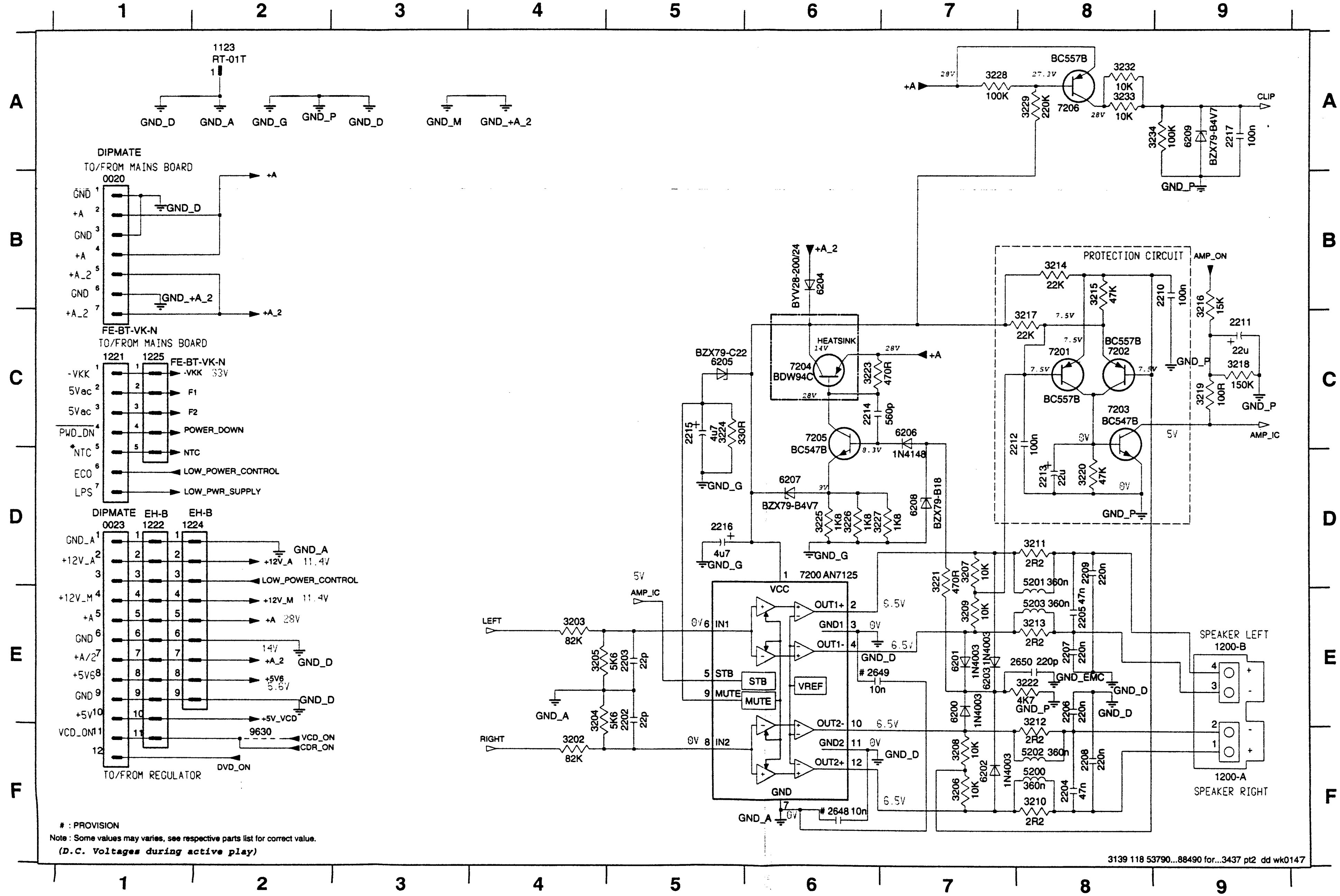
This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

3139 113 3437 pt2 dd wk0147

0020	D5
0023	B5
1123	D5
1200	D1
1221	A6
1222	B5
1224	B4
1225	B6
1250	C7
1251	B7
1252	B5
1253	C7
1254	B3
1255	D5
1256	E7
1257	E7
1260	A3
1261	A3
1262	A5
1263	A6
1264	A6
1265	A7
1266	A3
1267	D5
1268	E7
1269	A7
1500	B1
1501	B1
1502	C1
1504	A1
1505	A3
1506	C6
2204	D1
2205	D1
2206	C1
2207	C1
2208	C1
2209	D1
2210	E3
2211	E1
2212	E3
2213	E1
2214	E2
2215	E1
2216	D1
2217	C4
2500	B7
2501	C7
2504	C5
2505	C6
2510	C6
2511	C6
2516	B1
2517	A1
2518	B4
2519	B4
2528	D6
2529	D7
2530	D6
2531	D7
2532	D6
2533	D7
2534	D5
2535	D7
2542	E7
2543	E7
2544	C6
2545	D7
2546	B2
2547	A3
2550	C5
2551	C5
2559	C7
2561	C7
2563	C7
2565	C6
2571	D6
2572	D6
2579	E6
2580	E6
2585	E7
2586	E5
2590	B2
2591	E6
2593	D5
2594	C1
2595	B2
2607	B7
2609	A6
2610	A7
2613	A1
2615	C4
2616	D4
2642	B3
2643	A5
2648	C1
2649	D1
3206	C2
3207	D2
3208	C2
3209	D3
3210	C1
3211	D1
3212	C2
3213	C2
3214	E2
3215	E3
3216	E3
3217	E2
3218	E3
3219	E3
3220	E2
3221	E3
3222	E3
3223	D2
3224	D3
3225	E2
3226	E2
3227	E2
3229	C3
3373	B6
3516	C3
3517	C4
3550	A4
3553	C6
3560	B2
3564	B2
3565	C7
3566	A7
3577	E5
3578	E5
3597	E6
3601	E7
3603	E4
3606	E4
3613	B3
3615	C2
3616	B2
3619	E5
3620	E5
3628	A7
3635	A3
3644	B5
3670	A6
5200	C2
5201	D2
5202	C2
5203	D2
5500	E6
5501	A1
6200	C3
6201	D3
6202	C3
6203	D3
6204	C4
6205	D3
6206	D3
6207	D1
6208	E3
6209	C4
6330	B6
6508	A7
6509	C7
6510	D7
6511	A7
6512	A6
~~6513~~	~~B3~~
6520	C3
6521	B2
7200	C2
7201	E1
7202	E1
7203	E2
7204	D2
7205	E2
7206	C3
7328	B6
7527	A4
7529	A6
9050	B5
9530	A7
9531	B7
9532	B7
9533	B7
9534	B7
9535	B7
9536	A5
9537	B6
9538	B6
9539	B5
9540	A7
9541	B6
9542	C6
9543	A7
9544	B5
9545	A6
9546	B6
9547	C6
9548	C5
9549	C5
9550	C5
9551	B6
9552	B5
9553	B6
9554	A5
9555	B5
9556	B5
9557	A5
9558	B6
9559	B4
9560	B4
9561	C5
9562	C5
9563	C5
9564	C4
9565	C5
9566	C4
9567	C4
9568	C4
9569	C5
9570	B4
9571	B4
9572	C4
9573	C4
9574	C4
9575	C4
9576	B3
9577	B3
9578	B3
9579	C4
9580	B3
9581	C3
9582	A2
9583	A2
9584	A2
9585	A2
9586	A2
9587	A2
9588	A2
9589	A2
9590	C2
~~9591~~	~~C2~~
9592	D3
9593	C3
9594	C3
9595	B6
9596	D5
9597	E1
9598	E2
9599	E2
9600	D3
9601	E4
9602	E3
9603	D3
9604	D3
9605	D3
9606	D3
9607	D3
9608	D4
9609	D4
9610	D5
9611	D5
9612	D5
9613	D5
9614	E6
9615	E6
9616	C3
9617	C6
9618	D7
9619	D6
9620	D7
9621	D7
9622	C7
9623	C7
9624	E7
9625	E7
9626	E7
9627	E7
9628	B7
9629	B3
9630	B5
9631	B7
9632	B7
9633	B1
9634	C2
9635	D7
9640	A1
9641	C1
9650	E5
9651	E5
9652	E3

COMBI CIRCUIT - POWER AMPLIFIER PART

0020 B1	1221 C1	2203 E5	2208 F8	2213 D8	2648 F6	3204 E4	3209 E7	3214 B8	3219 C9	3224 C5	3229 A8	5201 D8	6202 F7	6207 D6	7202 C8	9630 F2
0023 D1	1222 D1	2204 F8	2209 D8	2214 C6	2649 E6	3205 E4	3210 F8	3215 B8	3220 D8	3225 D6	3232 A8	5202 F8	6203 E7	6208 D7	7203 C8	
1123 A2	1224 D1	2205 E8	2210 B9	2215 C5	2650 E8	3206 F7	3211 D8	3216 B9	3221 D7	3226 D6	3233 A8	5203 E8	6204 B6	6209 A9	7204 C6	
1200-A F9	1225 C1	2206 E8	2211 C9	2216 D5	3202 F4	3207 D7	3212 E8	3217 C8	3222 E8	3227 D7	3234 A9	6200 E7	6205 C5	7200 D6	7205 C6	
1200-B E9	2202 E5	2207 E8	2212 C8	2217 A9	3203 E4	3208 F7	3213 E8	3218 C9	3223 C6	3228 A7	5200 F8	6201 E7	6206 C7	7201 C8	7206 A8	


1 2 3 4 5 6 7 8 9
A B C D E F
1123
RT-01T
GND_D GND_A GND_G GND_P GND_D GND_M GND_+A_2
DIPMATE
TO/FROM MAINS BOARD
0020
GND +A GND +A +A_2 GND +A_2
GND_D
GND_+A_2
+A
+A_2
FE-BT-VK-N
TO/FROM MAINS BOARD
1221 1225
FE-BT-VK-N
-VKK 5Vac 5Vac PWD_DN NTC ECO LPS
-VKK 33V
F1
F2
POWER_DOWN
NTC
LOW_POWER_CONTROL
LOW_PWR_SUPPLY
DIPMATE EH-B EH-B
0023 1222 1224
GND_A +12V_A +12V_M +A GND +A/2 +5V6 GND +5V VCD_ON
GND_A
+12V_A 11.4V
LOW_POWER_CONTROL
+12V_M 11.4V
+A 28V
14V
+A_2
GND_D
+5V6 5.6V
GND_D
+5V_VCD
9630
VCD_ON
CDR_ON
DVD_ON
TO/FROM REGULATOR
+A
28V
3228 100K
27.3V
BC557B
7206
3229 220K
28V
3232 10K
3233 10K
CLIP
3234 100K
6209 BZX79-B4V7
2217 100n
GND_P
+A_2
BYV28-200/24
6204
HEATSINK
14V
28V
7204 BDW94C
3223 470R
+A
BZX79-C22
6205
2215 4u7
3224 330R
GND_G
2214 560p
7205 BC547B
8.3V
6206 1N4148
6207 BZX79-B4V7
9V
3225 1K8 3226 1K8 3227 1K8
6208 BZX79-B18
GND_G
2216 4u7
GND_G
PROTECTION CIRCUIT
AMP_ON
3214 22K
3215 47K
2210 100n
3217 22K
7.5V
7201 BC557B
7202 BC557B
GND_P
3216 15K
2211 22u
3218 150K
3219 100R
GND_P
7203 BC547B
5V
AMP_IC
2212 100n
0V
2213 22u
3220 47K
0V
GND_P
5V
AMP_IC
1 7200 AN7125
VCC
OUT1+ 2 9.5V
GND1 3 0V
OUT1- 4 6.5V
GND_D
# 2649 10n
STB
MUTE
VREF
OUT2- 10 6.5V
GND2 11 0V
GND_D
OUT2+ 12
6.5V
GND
7
GND_A 0V
# 2648 10n
LEFT
3203 82K
0V 6 IN1
3205 5K6
2203 22p
5 STB
9 MUTE
GND_A
3204 5K6
2202 22p
RIGHT
3202 82K
0V 8 IN2
3221 470R
3207 10K
3209 10K
3211 2R2
5201 360n
2209 220n
5203 360n
2205 47n
3213 2R2
6201 1N4003
6203 1N4003
2650 220p
2207 220n
GND_EMC
3222 4K7
GND_P
GND_D
GND_D
6200 1N4003
3212 2R2
2206 220n
3208 10K
6202 1N4003
5202 360n
2208 220n
3206 10K
5200 360n
2204 47n
3210 2R2
SPEAKER LEFT
1200-B
4 + 3 -
2 - 1 +
1200-A
SPEAKER RIGHT

: PROVISION

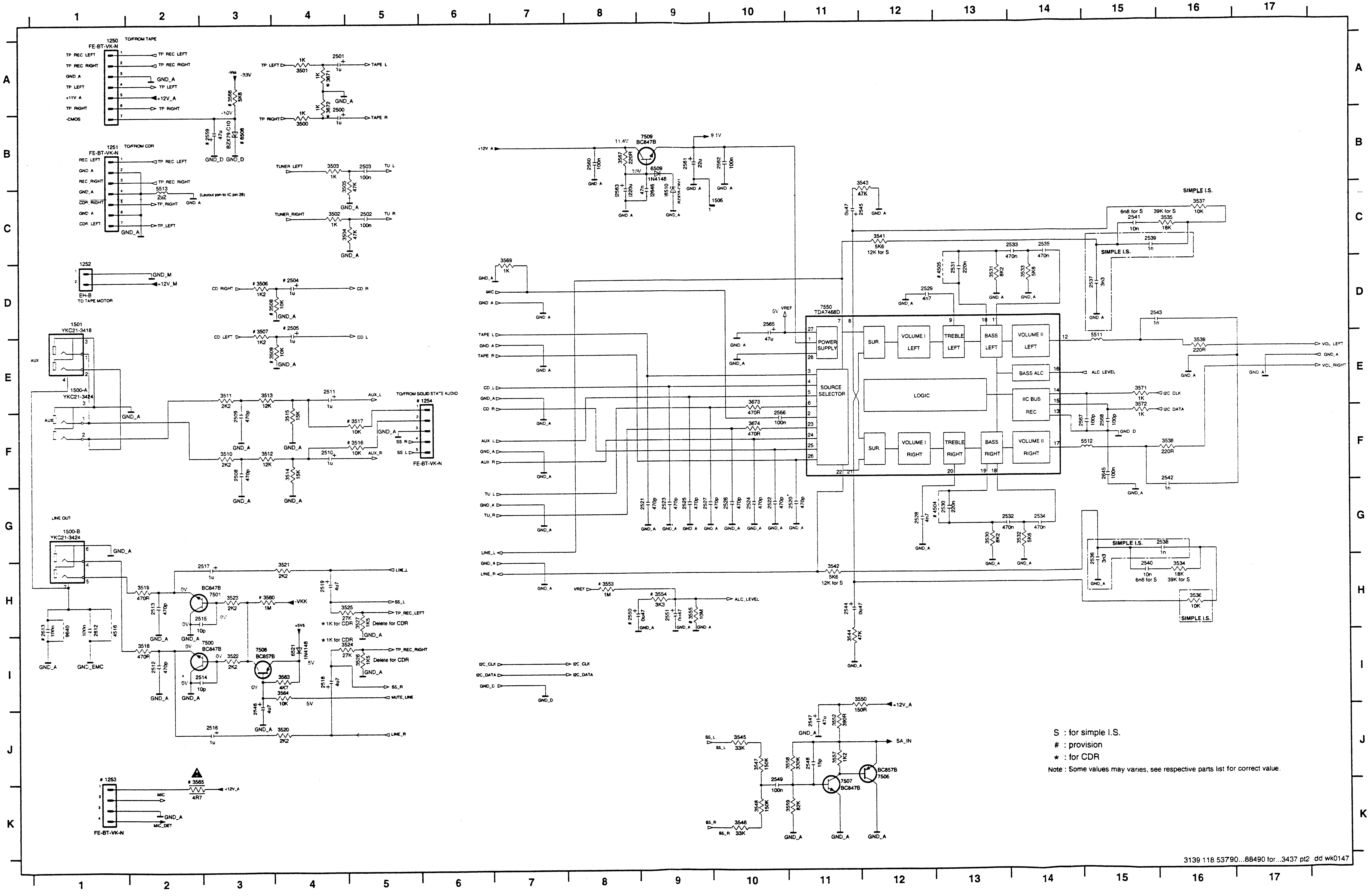
Note : Some values may varies, see respective parts list for correct value.

(D.C. Voltages during active play)

3139 118 53790...88490 for...3437 pt2 dd wk0147

COMBI CIRCUIT - SOURCE SELECT & SOUND CONTROL PART

1250	A1
1251	B1
1252	D1
1253	J1
1254	E6
1500-A	E1
1500-B	G1
1501	D1
1506	C10
2500	A4
2501	A4
2502	C5
2503	B5
2504	D4
2505	D4
2508	F3
2509	F3
2510	F4
2511	E4
2512	I2
2513	H2
2514	I2
2515	H2
2516	J3
2517	H3
2518	I4
2519	H4
2520	G11
2521	G9
2522	G10
2523	G9
2524	G10
2525	G9
2526	G10
2527	G9
2528	G12
2529	D12
2530	G13
2531	D13
2532	G13
2533	C14
2534	G14
2535	C14
2536	H15
2537	D15
2538	G16
2539	C15
2540	H15
2541	C15
2542	F16
2543	D15
2544	H11
2545	C12
2546	I3
2547	J11
2548	J11
2549	J10
2550	H8
2551	H9
2559	B3
2560	B8
2561	B9
2562	B10
2563	C8
2565	D10
2566	F10
2567	F15
2568	F15
2612	H1
2613	H1
2645	F15
2646	C9
3500	B4
3501	A4
3502	C4
3503	B4
3504	C5
3505	B5
3506	D3
3507	D3
3508	D4
3509	E4
3510	F3
3511	E3
3512	F3
3513	E3
3514	F4
3515	F4
3516	F5
3517	F5
3518	I2
3519	H2
3520	J4
3521	H4
3522	I3
3523	H3
3524	I4
3525	H4
3526	I5
3527	H5
3530	G13
3531	D13
3532	G14
3533	D14
3534	H16
3535	C16
3536	H16
3537	C16
3538	F16
3539	E16
3541	C12
3542	H11
3543	C12
3544	I11
3545	J10
3546	K10
3547	J10
3548	K10
3550	I11
3552	J11
3553	H8
3554	H9
3555	H9
3557	J11
3558	J11
3559	K11
3560	H3
3563	I4
3564	I4
3565	J2
3566	A3
3567	B8
3569	D7
3571	E15
3572	F15
3671	A4
3672	A4
3673	E10
3674	F10
4504	G13
4505	D13
4516	H1
5511	E15
5512	F15
5513	B2
6508	B3
6509	B9
6510	C9
6521	I4
7500	I3
7501	H3
7506	J12
7507	K11
7508	I3
7509	B9
7550	D11
9640	H1

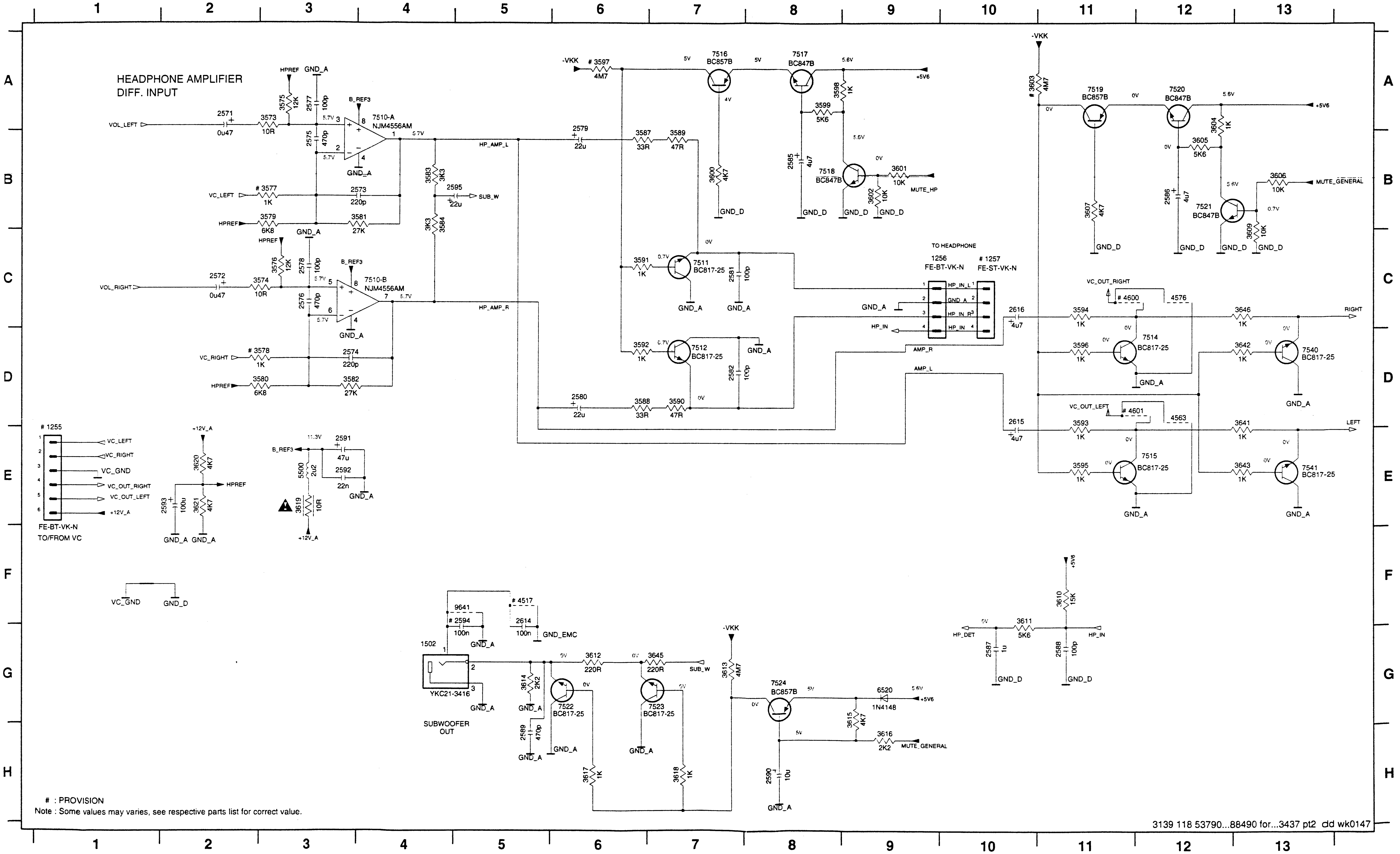

1250
FE-BT-VK-N
TO/FROM TAPE
TP REC LEFT
TP REC RIGHT
GND A
TP LEFT
+11V A
TP RIGHT
-CMOS
+12V_A
1251
TO/FROM CDR
REC LEFT
REC RIGHT
CDR RIGHT
CDR LEFT
(Layout join to IC pin 26)
1252
EH-B
TO TAPE MOTOR
GND_M
+12V_M
1501
YKC21-3418
AUX
1500-A
YKC21-3424
LINE OUT
1500-B
YKC21-3424
GND_A
GND_EMC
# 1253
FE-BT-VK-N
MIC
MIC_DET
# 3565
4R7
+12V_A
TP LEFT
TAPE L
TP RIGHT
TAPE R
TUNER LEFT
TUNER RIGHT
TU L
TU R
CD RIGHT
CD LEFT
CD R
CD L
AUX_L
AUX_R
TO/FROM SOUND STATE AUDIO
# 1254
SS_R
SS_L
FE-BT-VK-N
BC847B
7501
7500
7506
BC857B
-VKK
+5V6
LINE_L
LINE_R
TP_REC_LEFT
TP_REC_RIGHT
* 1K for CDR
Delete for CDR
MUTE_LINE
+12V A
7509
BC847B
9.1V
1N4148
MIC
TAPE L
TAPE R
CD_L
CD R
AUX L
AUX R
TU L
TU_R
LINE_L
LINE_R
VREF
ALC_LEVEL
I2C_CLK
I2C_DATA
GND_D
7550
TDA7468D
POWER SUPPLY
SOURCE SELECTOR
SUR.
VOLUME I LEFT
TREBLE LEFT
BASS LEFT
VOLUME II LEFT
BASS ALC
LOGIC
IIC BUS
REC
VOLUME I RIGHT
TREBLE RIGHT
BASS RIGHT
VOLUME II RIGHT
ALC LEVEL
I2C CLK
I2C DATA
VOL_LEFT
VOL_RIGHT
SIMPLE I.S.
6n8 for S
39K for S
12K for S
+12V_A
SA_IN
SS_L
SS_R
7507
BC847B
7506
BC857B
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
A
B
C
D
E
F
G
H
I
J
K

S : for simple I.S.
: provision
* : for CDR
Note : Some values may varies, see respective parts list for correct value.

3139 118 53790...88490 for...3437 pt2 dd wk0147

COMBI CIRCUIT - HEADPHONE AMPLIFIER & SUB-WOOFER OUT PART

1255	E1
1256	C9
1257	C10
1502	G4
2571	A2
2572	C2
2573	B4
2574	D3
2575	B3
2576	C3
2577	A3
2578	C3
2579	B6
2580	D6
2581	C7
2582	D7
2585	B8
2586	B12
2587	G10
2588	G11
2589	H5
2590	H8
2591	E3
2592	E3
2593	E2
2594	F5
2595	B4
2614	F5
2615	D10
2616	C10
3573	A3
3574	C3
3575	A3
3576	C3
3577	B3
3578	D3
3579	B3
3580	D3
3581	B4
3582	D3
3583	B4
3584	B4
3587	B6
3588	D6
3589	B7
3590	D7
3591	C6
3592	D6
3593	D11
3594	C11
3595	E11
3596	D11
3597	A6
3598	A8
3599	A8
3600	B7
3601	B9
3602	B9
3603	A10
3604	A12
3605	B12
3606	B13
3607	B11
3609	C13
3610	F11
3611	F10
3612	G6
3613	G7
3614	G5
3615	G9
3616	H9
3617	H6
3618	H7
3619	E3
3620	E2
3621	E2
3641	D13
3642	D13
3643	E13
3645	G7
3646	C13
4517	F5
4563	D12
4576	C12
4600	C11
4601	D12
5500	E3
6520	G9
7510-A	A4
7510-B	C4
7511	C7
7512	D7
7514	D12
7515	E12
7516	A7
7517	A8
7518	B8
7519	A11
7520	A12
7521	B12
7522	G6
7523	G7
7524	G8
7540	D13
7541	E13
9641	F5


1
2
3
4
5
6
7
8
9
10
11
12
13
A
B
C
D
E
F
G
H
HEADPHONE AMPLIFIER
DIFF. INPUT
VOL_LEFT
VOL_RIGHT
VC_LEFT
VC_RIGHT
HPREF
GND_A
B_REF3
7510-A
NJM4556AM
7510-B
NJM4556AM
2571 0u47
3573 10R
3575 12K
2577 100p
2575 470p
# 3577 1K
2573 220p
3579 6K8
3581 27K
2572 0u47
3574 10R
3576 12K
2578 100p
2576 470p
# 3578 1K
2574 220p
3580 6K8
3582 27K
5.7V
HP_AMP_L
HP_AMP_R
3583 3K3
3584 3K3
2595 22u
SUB_W
-VKK
# 3597 4M7
2579 22u
3587 33R
3589 47R
2580 22u
3588 33R
3590 47R
7516 BC857B
7517 BC847B
5V
4V
5.6V
+5V6
3598 1K
3599 5K6
3600 4K7
2585 4u7
7518 BC847B
3601 10K
3602 10K
MUTE_HP
GND_D
0V
0.7V
3591 1K
7511 BC817-25
2581 100p
3592 1K
7512 BC817-25
2582 100p
TO HEADPHONE
1256 FE-BT-VK-N
# 1257 FE-ST-VK-N
HP_IN_L
GND_A
HP_IN_R
HP_IN
AMP_R
AMP_L
# 3603 4M7
7519 BC857B
7520 BC847B
3604 1K
3605 5K6
2586 4u7
3606 10K
MUTE_GENERAL
7521 BC847B
3607 4K7
3609 10K
VC_OUT_RIGHT
# 4600
4576
2616 4u7
3594 1K
3596 1K
7514 BC817-25
3646 1K
3642 1K
7540 BC817-25
RIGHT
VC_OUT_LEFT
# 4601
4563
2615 4u7
3593 1K
3595 1K
7515 BC817-25
3641 1K
3643 1K
7541 BC817-25
LEFT
# 1255
VC_LEFT
VC_RIGHT
VC_GND
VC_OUT_RIGHT
VC_OUT_LEFT
+12V_A
FE-BT-VK-N
TO/FROM VC
3620 4K7
3621 4K7
2593 100u
11.3V
2591 47u
5500 2u2
2592 22n
3619 10R
VC_GND
GND_D
9641
# 2594 100n
# 4517
2614 100n
GND_EMC
1502
YKC21-3416
SUBWOOFER OUT
3614 2K2
2589 470p
7522 BC817-25
3612 220R
7523 BC817-25
3645 220R
3617 1K
3618 1K
3613 4M7
7524 BC857B
6520 1N4148
3615 4K7
3616 2K2
2590 10u
3610 15K
3611 5K6
HP_DET
2587 1u
2588 100p

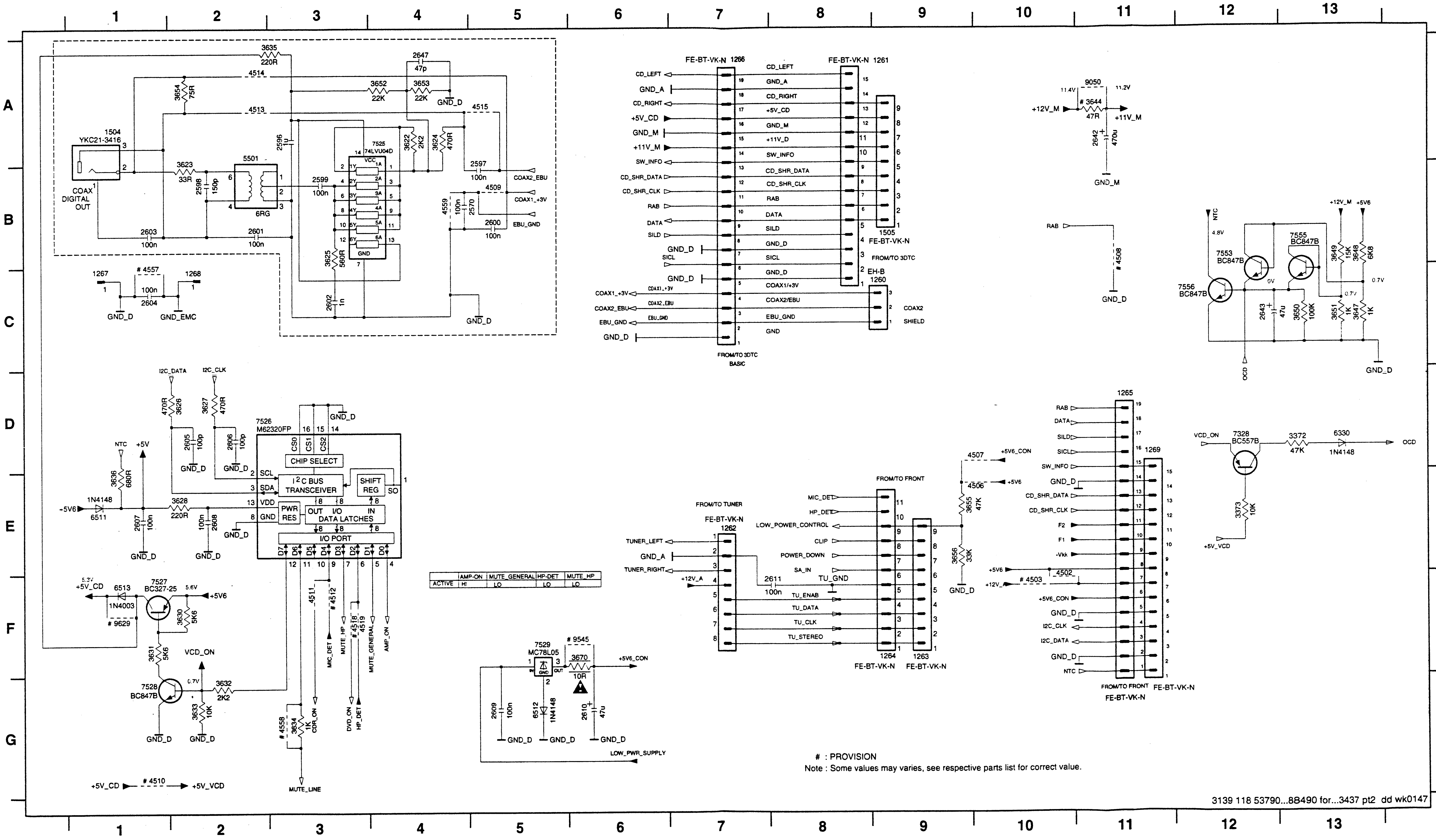
: PROVISION

Note : Some values may varies, see respective parts list for correct value.

3139 118 53790...88490 for...3437 pt2 dd wk0147

COMBI CIRCUIT - CONNECTOR & DIGITAL OUT PART

1260	C9
1261	A9
1262	E7
1263	F9
1264	F9
1265	D11
1266	A7
1267	C1
1268	C2
1269	D11
1504	A1
1505	B9
2570	B5
2596	A3
2597	A5
2598	B2
2599	B3
2600	B5
2601	B2
2602	C3
2603	B1
2604	C1
2605	D2
2606	D2
2607	E1
2608	E2
2609	G5
2610	G6
2611	F8
2642	A11
2643	C12
2647	A4
3372	D13
3373	E12
3622	A4
3623	A2
3624	A4
3625	B3
3626	D2
3627	D2
3628	E2
3630	F2
3631	F1
3632	G2
3633	G2
3634	G3
3635	A3
3636	E1
3644	A11
3647	C13
3648	B13
3649	B13
3650	C13
3651	C13
3652	A4
3653	A4
3654	A2
3655	E9
3656	E9
3670	F6
4502	E10
4503	F10
4506	E10
4507	D10
4508	B11
4509	B5
4510	G1
4511	F3
4512	F3
4513	A2
4514	A2
4515	A5
4518	F3
4519	F3
4557	C1
4558	G3
4559	B4
5501	A2
6330	D13
6511	E1
6512	G5
6513	F1
7328	D12
7525	A4
7526	D2
7527	F1
7528	G1
7529	F5
7553	B12
7555	B13
7556	C12
9050	A11
9545	F6
9629	F1


1
2
3
4
5
6
7
8
9
10
11
12
13
A
B
C
D
E
F
G
1504
YKC21-3416
COAX
DIGITAL
OUT
3635
220R
3654
75R
4514
4513
3623
33R
2598
150p
5501
6RG
2596
1u
2599
100n
2603
100n
2601
100n
7525
74LVU04D
VCC
GND
2647
47p
3652
22K
3653
22K
GND_D
4515
3622
2K2
3624
470R
2597
100n
4509
COAX2_EBU
COAX1_+3V
EBU_GND
4559
100n
2570
2600
100n
3625
560R
2602
1n
GND_D
1267
1268
# 4557
100n
2604
GND_D
GND_EMC
FE-BT-VK-N 1266
FE-BT-VK-N 1261
CD_LEFT
GND_A
CD_RIGHT
+5V_CD
GND_M
+11V_M
+11V_D
SW_INFO
CD_SHR_DATA
CD_SHR_CLK
RAB
DATA
SILD
GND_D
SICL
COAX1_+3V
COAX2_EBU
EBU_GND
GND
FROM/TO 3DTC
BASIC
1505
FE-BT-VK-N
FROM/TO 3DTC
EH-B
1260
COAX2
SHIELD
9050
11.4V
11.2V
+12V_M
# 3644
47R
+11V_M
2642
470u
GND_M
RAB
# 4508
GND_D
NTC
4.8V
+12V_M
+5V6
7553
BC847B
7555
BC647B
7556
BC847B
0V
0.7V
3649
15K
3648
6K8
2643
47u
3650
100K
3651
1K
3647
1K
OCD
GND_D
I2C_DATA
I2C_CLK
3626
470R
3627
470R
2605
100p
2606
100p
7526
M62320FP
16
15
14
CS0
CS1
CS2
CHIP SELECT
SCL
SDA
I²C BUS
TRANSCEIVER
SHIFT
REG
SO
VDD
GND
PWR
RES
OUT
I/O
IN
DATA LATCHES
I/O PORT
D7
D6
D5
D4
D3
D2
D1
D0
NTC
+5V
3636
680R
1N4148
-5V6
6511
3628
220R
2607
100n
2608
100n
5.3V
+5V_CD
6513
1N4003
# 9629
7527
BC327-25
5.6V
+5V6
3630
5K6
3631
5K6
VCD_ON
7528
BC847B
0.7V
3632
2K2
3633
10K
4511
# 4512
MIC_DET
MUTE_HP
# 4518
4519
MUTE_GENERAL
AMP_ON
DVD_ON
HP_DET
# 4558
3634
1K
CD_ON
MUTE_LINE
+5V_CD
# 4510
+5V_VCD
7529
MC78L05
# 9545
3670
10R
+5V6_CON
2609
100n
6512
1N4148
2610
47u
LOW_PWR_SUPPLY
FROM/TO TUNER
FE-BT-VK-N
1262
TUNER_LEFT
TUNER_RIGHT
+12V_A
2611
100n
TU_GND
TU_ENAB
TU_DATA
TU_CLK
TU_STEREO
FROM/TO FRONT
MIC_DET
HP_DET
LOW_POWER_CONTROL
CLIP
POWER_DOWN
SA_IN
1264
1263
4507
+5V6_CON
4506
+5V6
3655
47K
3656
33K
1265
1269
RAB
DATA
SILD
SICL
SW_INFO
CD_SHR_DATA
CD_SHR_CLK
F2
F1
-Vkk
+12V
# 4503
4502
+5V6_CON
I2C_CLK
I2C_DATA
NTC
FROM/TO FRONT
FE-BT-VK-N
VCD_ON
7328
BC557B
3372
47K
6330
1N4148
OCD
3373
10K
+5V_VCD

	AMP-ON	MUTE_GENERAL	HP-DET	MUTE_HP
ACTIVE	HI	LO	LO	LO

: PROVISION

Note : Some values may varies, see respective parts list for correct value.

3139 118 53790...88490 for...3437 pt2 dd wk0147

ELECTRICAL PARTS LIST - REGULATOR BOARD

MISCELLANEOUS

	3139 111 01430	Spring Clip I/C	
1171	4822 071 52502	△ Fuse T2,5A	

CAPACITORS

2400	4822 124 22652	2.2uF 20% 50V	
2402	4822 124 40433	47uF 20% 25V	
2403	4822 124 22726	4,7uF 35V	/37
2404	2020 561 90365	100nF +80/-20% 50V	/37
2405	4822 124 11947	10uF 20% 16V	
2406	4822 124 81021	100uF 20% 16V	
2407	4822 124 81021	100uF 20% 16V	
2411	4822 124 12233	47uF 20% 25V	
2412	4822 124 40756	1uF 20% 100V	
2413	4822 124 21732	10uF 20% 25V	
2415	4822 124 40248	10uF 20% 63V	
2416	4822 124 40433	47uF 20% 25V	
2417	4822 122 33197	1nF 10% 50V	

RESISTORS

3403	4822 050 11002	1k 1% 0,4W	
3404	4822 116 52256	2k2 5% 0,5W	
3405	4822 116 83876	270R 5% 0,5W	
3406	4822 050 11002	1k 1% 0,4W	
3407	4822 116 52244	15k 5% 0,5W	/37
3409	4822 116 52269	3k3 5% 0,5W	/37
3410	4822 050 21003	10k 1% 0,6W	/37
3411	4822 116 83883	470R 5% 0,5W	
3412	4822 050 11002	1k 1% 0,4W	/37
3413	4822 050 11002	1k 1% 0,4W	/37
3414	4822 050 11002	1k 1% 0,4W	/37
3415	4822 116 52199	68R 5% 0,5W	
3416	4822 116 52206	120R 5% 0,5W	
3417	4822 116 52206	120R 5% 0,5W	
3418	4822 117 12063	NTC DC 5W 10k 5%	
3419	4822 116 52219	330R 5% 0,5W	
3420	4822 050 11002	1k 1% 0,4W	
3421	4822 052 10228	△ 2R2 5% 0,33W	
3423	4822 116 52257	22k 5% 0,5W	
3424	4822 116 52285	470k 5% 0,5W	
3425	4822 116 52256	2k2 5% 0,5W	
3426	4822 116 52234	100k 5% 0,5W	
3427	4822 116 52175	100R 5% 0,5W	
3428	4822 116 83868	150R 5% 0,5W	
3430	4822 050 21003	10k 1% 0,6W	
3431	4822 116 52213	180R 5% 0,5W	
3432	4822 116 52213	180R 5% 0,5W	
3433	4822 050 21003	10k 1% 0,6W	
3434	4822 116 52206	120R 5% 0,5W	
3435	4822 116 52206	120R 5% 0,5W	
3436	4822 050 21003	10k 1% 0,6W	
3437	4822 116 52234	100k 5% 0,5W	
3438	4822 116 52234	100k 5% 0,5W	
3439	4822 050 11002	1k 1% 0,4W	

DIODES

6400	4822 130 30621	1N4148	
6401	4822 130 30621	1N4148	
6402	4822 130 34281	BZX79-C15	/37
6404	4822 130 30621	1N4148	/37
6405	4822 130 61219	BZX79-B10	
6406	4822 130 34174	BZX79-B4V7	
6407	4822 130 34174	BZX79-B4V7	
6412	4822 130 30621	1N4148	
6413	3198 010 53980	BZX79-B3V9	

TRANSISTORS & INTEGRATED CIRCUITS

7401	4822 130 40959	BC547B	
7402	4822 130 44568	BC557B	
7403	5322 130 62071	BDX53B	
7405	4822 130 40995	BD438	/37
7406	4822 130 40959	BC547B	/37
7407	4822 130 40959	BC547B	/37
7408	4822 130 40959	BC547B	
7409	4822 130 41246	BC327-25	
7410	4822 130 40995	BD438	
7411	4822 130 40959	BC547B	
7412	4822 130 40959	BC547B	
7413	4822 130 10847	BDW94C	
7414	4822 130 40959	BC547B	
7415	4822 130 40959	BC547B	
7419	4822 130 40959	BC547B	
7420	4822 130 11336	STP16NE06FP	
7421	4822 130 40959	BC547B	

Note : Only the parts mentioned in this list are normal service spare parts.

ELECTRICAL PARTS LIST - COMBI BOARD

MISCELLANEOUS

	3139 111 01430	Spring Clip I/C	
1200	4822 267 31176	Speaker Terminal	
1221	4822 267 10953	Flex Connector 7P	/22
1225	4822 267 10954	Flex Connector 5P	/37
1251	4822 267 10953	Flex Connector 7P	
1256	4822 267 10733	Flex Connector 4P	
1262	4822 265 11515	Flex Connector 8P	
1263	2422 025 14518	Flex Connector 9P	
1269	4822 265 10981	Flex Connector 15P	
1500	4822 267 31823	Cinch Socket - Line out & Aux in	
1502	4822 267 31729	Cinch Socket - Subwoofer out	
1505	2422 025 14518	Flex Connector 9P	

CAPACITORS

2202	4822 122 33761	22pF 5% 50V
2203	4822 122 33761	22pF 5% 50V
2204	4822 126 12785	47nF 50V
2205	4822 126 12785	47nF 50V
2206	4822 121 42408	220nF 5% 63V
2207	4822 121 42408	220nF 5% 63V
2208	4822 121 42408	220nF 5% 63V
2209	4822 121 42408	220nF 5% 63V
2210	2020 561 90365	100nF +80/-20% 50V
2211	4822 124 81151	22uF 50V
2212	2020 561 90365	100nF +80/-20% 50V
2213	4822 124 81151	22uF 50V
2214	4822 122 10459	560pF 10% 50V
2215	4822 124 40769	4,7uF 20% 100V
2216	4822 124 40769	4,7uF 20% 100V
2217	2020 561 90365	100nF +80/-20% 50V
2500	4822 124 22466	1uF 20% 50V
2501	4822 124 22466	1uF 20% 50V
2502	4822 126 14305	100nF 10% 16V
2503	4822 126 14305	100nF 10% 16V
2508	4822 126 13881	470pF 5% 50V
2509	4822 126 13881	470pF 5% 50V
2510	4822 124 22466	1uF 20% 50V
2511	4822 124 22466	1uF 20% 50V
2512	4822 126 13881	470pF 5% 50V
2513	4822 126 13881	470pF 5% 50V
2514	4822 122 33741	10pF 10% 50V
2515	4822 122 33741	10pF 10% 50V
2516	4822 124 40756	1uF 20% 100V
2517	4822 124 40756	1uF 20% 100V
2518	4822 124 40769	4,7uF 20% 100V
2519	4822 124 40769	4,7uF 20% 100V
2520	4822 126 13881	470pF 5% 50V
2521	4822 126 13881	470pF 5% 50V
2522	4822 126 13881	470pF 5% 50V
2523	4822 126 13881	470pF 5% 50V
2524	4822 126 13881	470pF 5% 50V
2525	4822 126 13881	470pF 5% 50V
2526	4822 126 13881	470pF 5% 50V
2527	4822 126 13881	470pF 5% 50V
2528	5322 122 32261	4,7nF 10% 100V
2529	5322 122 32261	4,7nF 10% 100V
2530	4822 121 42408	220nF 5% 63V
2531	4822 121 42408	220nF 5% 63V
2532	4822 121 51252	470nF 5% 63V
2533	4822 121 51252	470nF 5% 63V
2534	4822 121 51252	470nF 5% 63V
2535	4822 121 51252	470nF 5% 63V
2536	5322 126 11579	3,3nF 10% 63V
2537	5322 126 11579	3,3nF 10% 63V
2538	3198 016 31020	1nF 25V
2539	3198 016 31020	1nF 25V
2540	5322 126 11583	10nF 10% 50V
2541	5322 126 11583	10nF 10% 50V
2542	4822 122 33197	1nF 10% 50V
2543	4822 122 33197	1nF 10% 50V
2544	5322 124 41948	470nF 20% 50V
2545	5322 124 41948	470nF 20% 50V
2546	4822 124 40769	4,7uF 20% 100V
2547	4822 124 81286	47uF 20% 16V
2548	4822 122 33752	15pF 5% 50V
2549	4822 126 14305	100nF 10% 16V
2551	5322 124 41948	470nF 20% 50V
2560	4822 126 14305	100nF 10% 16V
2561	4822 124 81151	22uF 50V
2562	4822 126 14305	100nF 10% 16V
2563	4822 124 40196	220uF 20% 16V
2565	4822 124 80231	47uF 20% 16V
2566	4822 126 14305	100nF 10% 16V
2567	4822 122 31765	100pF 2% 63V
2568	4822 122 31765	100pF 2% 63V
2571	5322 124 41948	470nF 20% 50V
2572	5322 124 41948	470nF 20% 50V
2573	4822 126 13883	220pF 5% 50V
2574	4822 126 13883	220pF 5% 50V
2575	4822 126 13881	470pF 5% 50V
2576	4822 126 13881	470pF 5% 50V
2577	4822 122 31765	100pF 2% 63V
2578	4822 122 31765	100pF 2% 63V
2579	4822 124 81151	22uF 50V
2580	4822 124 81151	22uF 50V
2581	4822 122 31765	100pF 2% 63V
2582	4822 122 31765	100pF 2% 63V
2585	4822 124 40769	4,7uF 20% 100V
2586	4822 124 40769	4,7uF 20% 100V
2587	3198 017 41050	1uF 10V
2588	4822 122 31765	100pF 2% 63V
2589	4822 126 13881	470pF 5% 50V
2590	4822 124 22833	10uF 50V
2591	4822 124 81286	47uF 20% 16V

ELECTRICAL PARTS LIST - COMBI BOARD

CAPACITORS

2592	4822 126 14494	22nF 10% 25V	
2593	4822 124 40207	100uF 20% 25V	
2595	4822 124 41796	22uF 20% 16V	
2604	4822 126 14305	100nF 10% 16V	
2605	4822 122 31765	100pF 2% 63V	
2606	4822 122 31765	100pF 2% 63V	
2607	2020 561 90365	100nF +80/-20% 50V	
2608	4822 126 14305	100nF 10% 16V	
2609	2020 561 90365	100nF +80/-20% 50V	/22
2610	4822 124 81286	47uF 20% 16V	/22
2611	4822 126 14305	100nF 10% 16V	
2612	4822 126 14305	100nF 10% 16V	
2614	4822 126 14305	100nF 10% 16V	
2615	4822 124 40769	4,7uF 20% 100V	
2616	4822 124 40769	4,7uF 20% 100V	
2642	4822 124 80791	470uF 20% 16V	
2643	4822 124 81286	47uF 20% 16V	
2645	4822 126 14305	100nF 10% 16V	
2646	3198 017 34730	47nF 16V	
2650	4822 126 13883	220pF 5% 50V	

RESISTORS

3202	4822 117 12864	82k 5% 0,6W	
3203	4822 117 12864	82k 5% 0,6W	
3204	4822 051 30562	5k6 5% 0,063W	
3205	4822 051 30562	5k6 5% 0,063W	
3206	4822 050 21003	10k 1% 0,6W	
3207	4822 050 21003	10k 1% 0,6W	
3208	4822 050 21003	10k 1% 0,6W	
3209	4822 050 21003	10k 1% 0,6W	
3210	4822 116 81154	2R2 5% 0,5W	
3211	4822 116 81154	2R2 5% 0,5W	
3212	4822 116 81154	2R2 5% 0,5W	
3213	4822 116 81154	2R2 5% 0,5W	
3214	4822 116 52257	22k 5% 0,5W	
3215	4822 116 83884	47k 5% 0,5W	
3216	4822 116 52244	15k 5% 0,5W	
3217	4822 116 52257	22k 5% 0,5W	
3218	4822 116 52245	150k 5% 0,5W	
3219	4822 116 52175	100R 5% 0,5W	
3220	4822 116 83884	47k 5% 0,5W	
3221	4822 116 83883	470R 5% 0,5W	
3222	4822 116 52283	4k7 5% 0,5W	
3223	4822 116 83883	470R 5% 0,5W	
3224	4822 116 52219	330R 5% 0,5W	
3225	4822 116 52249	1k8 5% 0,5W	
3226	4822 116 52249	1k8 5% 0,5W	
3227	4822 116 52249	1k8 5% 0,5W	
3228	4822 117 13632	100k 1% 0,62W	
3229	4822 116 83874	220k 5% 0,5W	
3232	4822 051 30103	10k 5% 0,062W	
3233	4822 051 30103	10k 5% 0,062W	
3234	4822 117 13632	100k 1% 0,62W	
3372	4822 117 12925	47k 1% 0,063W	
3373	4822 050 21003	10k 1% 0,6W	
3500	4822 051 30102	1k 5% 0,062W	
3501	4822 051 30102	1k 5% 0,062W	
3502	4822 051 30102	1k 5% 0,062W	
3503	4822 051 30102	1k 5% 0,062W	
3504	4822 117 12925	47k 1% 0,063W	
3505	4822 117 12925	47k 1% 0,063W	
3510	4822 051 30222	2k2 5% 0,062W	
3511	4822 051 30222	2k2 5% 0,062W	
3512	4822 051 30123	12k 5% 0,062W	
3513	4822 051 30123	12k 5% 0,062W	
3514	4822 051 30153	15k 5% 0,062W	
3515	4822 051 30153	15k 5% 0,062W	
3518	4822 051 30471	470R 5% 0,062W	
3519	4822 051 30471	470R 5% 0,062W	
3520	4822 051 30222	2k2 5% 0,062W	
3521	4822 051 30222	2k2 5% 0,062W	
3522	4822 051 30222	2k2 5% 0,062W	
3523	4822 051 30222	2k2 5% 0,062W	
3524	4822 051 30102	1k 5% 0,062W	
3525	4822 051 30102	1k 5% 0,062W	
3530	4822 117 12902	8k2 1% 0,063W	
3531	4822 117 12902	8k2 1% 0,063W	
3532	4822 051 30562	5k6 5% 0,063W	
3533	4822 051 30562	5k6 5% 0,063W	
3534	4822 051 30183	18k 5% 0,062W	
3535	4822 051 30183	18k 5% 0,062W	
3536	4822 051 30103	10k 5% 0,062W	
3537	4822 051 30103	10k 5% 0,062W	
3538	4822 051 30221	220R 5% 0,062W	
3539	4822 051 30221	220R 5% 0,062W	
3541	4822 051 30562	5k6 5% 0,063W	
3542	4822 051 30562	5k6 5% 0,063W	
3543	4822 117 12925	47k 1% 0,063W	
3544	4822 117 12925	47k 1% 0,063W	
3545	4822 051 30333	33k 5% 0,062W	
3546	4822 051 30333	33k 5% 0,062W	
3547	4822 051 30154	150k 5% 0,062W	
3548	4822 051 30154	150k 5% 0,062W	
3550	4822 116 83868	150R 5% 0,5W	
3552	4822 051 30391	390R 5% 0,062W	
3557	4822 117 11817	1k2 1% 1/16W	
3558	4822 051 30334	330k 5% 0,062W	
3559	4822 117 12864	82k 5% 0,6W	
3563	4822 051 30472	4k7 5% 0,062W	
3564	4822 050 21003	10k 1% 0,6W	
3567	4822 051 30221	220R 5% 0,062W	
3569	4822 051 30102	1k 5% 0,062W	
3571	4822 051 30471	470R 5% 0,062W	/22
3571	4822 051 30102	1k 5% 0,062W	/37

ELECTRICAL PARTS LIST - COMBI BOARD

3572	4822 051 30471	470R 5% 0,062W	/22
3572	4822 051 30102	1k 5% 0,062W	/37
3573	4822 051 30109	10R 5% 0,062W	
3574	4822 051 30109	10R 5% 0,062W	
3575	4822 051 30123	12k 5% 0,062W	
3576	4822 051 30123	12k 5% 0,062W	
3579	4822 051 30682	6k8 5% 0,062W	
3580	4822 051 30682	6k8 5% 0,062W	
3581	4822 051 30273	27k 5% 0,062W	
3582	4822 051 30273	27k 5% 0,062W	
3583	4822 051 30332	3k3 5% 0,062W	
3584	4822 051 30332	3k3 5% 0,062W	
3587	4822 051 30339	33R 5% 0,062W	
3588	4822 051 30339	33R 5% 0,062W	
3589	4822 051 30479	47R 5% 0,062W	
3590	4822 051 30479	47R 5% 0,062W	
3591	4822 051 30102	1k 5% 0,062W	
3592	4822 051 30102	1k 5% 0,062W	
3593	4822 051 30102	1k 5% 0,062W	
3594	4822 051 30102	1k 5% 0,062W	
3595	4822 051 30102	1k 5% 0,062W	
3596	4822 051 30102	1k 5% 0,062W	
3598	4822 051 30102	1k 5% 0,062W	
3599	4822 051 30562	5k6 5% 0,063W	
3600	4822 051 30472	4k7 5% 0,062W	
3601	4822 050 21003	10k 1% 0,6W	
3602	4822 051 30103	10k 5% 0,062W	
3604	4822 051 30102	1k 5% 0,062W	
3605	4822 051 30562	5k6 5% 0,063W	
3606	4822 050 21003	10k 1% 0,6W	
3607	4822 051 30472	4k7 5% 0,062W	
3609	4822 051 30103	10k 5% 0,062W	
3610	4822 051 30153	15k 5% 0,062W	
3611	4822 051 30562	5k6 5% 0,063W	
3612	4822 051 30221	220R 5% 0,062W	
3613	4822 050 24705	4M7 1% 0,6W	
3614	4822 051 30222	2k2 5% 0,062W	
3615	4822 116 52283	4k7 5% 0,5W	
3616	4822 116 52256	2k2 5% 0,5W	
3617	4822 051 30102	1k 5% 0,062W	
3618	4822 051 30102	1k 5% 0,062W	
3619	4822 052 10109	△ 10R 5% 0,33W	
3620	4822 116 52283	4k7 5% 0,5W	
3621	4822 051 30472	4k7 5% 0,062W	
3626	4822 051 30471	470R 5% 0,062W	
3627	4822 051 30471	470R 5% 0,062W	
3628	4822 116 83872	220R 5% 0,5W	
3630	4822 051 30562	5k6 5% 0,063W	
3631	4822 051 30562	5k6 5% 0,063W	
3632	4822 051 30222	2k2 5% 0,062W	
3633	4822 051 30103	10k 5% 0,062W	
3634	4822 051 30102	1k 5% 0,062W	
3636	4822 051 30681	680R 5% 0,062W	
3641	4822 051 30102	1k 5% 0,062W	
3642	4822 051 30102	1k 5% 0,062W	
3643	4822 051 30102	1k 5% 0,062W	
3645	4822 051 30221	220R 5% 0,062W	
3646	4822 051 30102	1k 5% 0,062W	
3647	4822 051 30102	1k 5% 0,062W	
3648	4822 051 30682	6k8 5% 0,062W	
3649	4822 051 30153	15k 5% 0,062W	/22
3650	4822 117 13632	100k 1% 0,62W	
3651	4822 051 30102	1k 5% 0,062W	/22
3655	4822 117 12925	47k 1% 0,063W	
3656	4822 051 30333	33k 5% 0,062W	
3670	4822 052 10109	△ 10R 5% 0,33W	/22
3671	4822 051 30102	1k 5% 0,062W	
3672	4822 051 30102	1k 5% 0,062W	
3673	4822 051 30471	470R 5% 0,062W	
3674	4822 051 30471	470R 5% 0,062W	
4502	4822 051 20008	0R Jumper 0805	
4506	4822 051 20008	0R Jumper 0805	/37
4507	4822 051 20008	0R Jumper 0805	/22
4511	4822 051 20008	0R Jumper 0805	
4519	4822 051 20008	0R Jumper 0805	
4530	4822 051 20008	0R Jumper 0805	
4531	4822 051 20008	0R Jumper 0805	
4532	4822 051 20008	0R Jumper 0805	
4533	4822 051 20008	0R Jumper 0805	
4534	4822 051 20008	0R Jumper 0805	
4536	4822 051 20008	0R Jumper 0805	
4537	4822 051 20008	0R Jumper 0805	
4538	4822 051 20008	0R Jumper 0805	
4539	4822 051 20008	0R Jumper 0805	
4540	4822 051 20008	0R Jumper 0805	
4541	4822 051 20008	0R Jumper 0805	
4542	4822 051 20008	0R Jumper 0805	
4543	4822 051 20008	0R Jumper 0805	
4545	4822 051 20008	0R Jumper 0805	
4546	4822 051 20008	0R Jumper 0805	
4547	4822 051 20008	0R Jumper 0805	
4548	4822 051 20008	0R Jumper 0805	
4550	4822 051 20008	0R Jumper 0805	
4551	4822 051 20008	0R Jumper 0805	
4552	4822 051 20008	0R Jumper 0805	
4553	4822 051 20008	0R Jumper 0805	
4554	4822 051 20008	0R Jumper 0805	
4555	4822 051 20008	0R Jumper 0805	
4560	4822 051 20008	0R Jumper 0805	
4561	4822 051 20008	0R Jumper 0805	
4562	4822 051 20008	0R Jumper 0805	
4563	4822 051 20008	0R Jumper 0805	
4564	4822 051 20008	0R Jumper 0805	
4565	4822 051 20008	0R Jumper 0805	

ELECTRICAL PARTS LIST - COMBI BOARD

RESISTORS

4567	4822 051 20008	0R Jumper 0805
4568	4822 051 20008	0R Jumper 0805
4569	4822 051 20008	0R Jumper 0805
4571	4822 051 20008	0R Jumper 0805
4572	4822 051 20008	0R Jumper 0805
4573	4822 051 20008	0R Jumper 0805
4575	4822 051 20008	0R Jumper 0805
4576	4822 051 20008	0R Jumper 0805
4577	4822 051 20008	0R Jumper 0805
4578	4822 051 20008	0R Jumper 0805
4580	4822 051 20008	0R Jumper 0805
4581	4822 051 20008	0R Jumper 0805
4582	4822 051 20008	0R Jumper 0805
4583	4822 051 20008	0R Jumper 0805
4584	4822 051 20008	0R Jumper 0805
4585	4822 051 20008	0R Jumper 0805
4586	4822 051 20008	0R Jumper 0805
4587	4822 051 20008	0R Jumper 0805
4588	4822 051 20008	0R Jumper 0805
4589	4822 051 20008	0R Jumper 0805

COILS & FILTERS

5200	4822 157 11837	Coil 8,5 Turn 0,36uH 10%
5201	4822 157 11837	Coil 8,5 Turn 0,36uH 10%
5202	4822 157 11837	Coil 8,5 Turn 0,36uH 10%
5203	4822 157 11837	Coil 8,5 Turn 0,36uH 10%
5500	4822 157 62552	Coil 2,2uH 5%
5511	2422 549 44607	IND FXD 0603 EMI 100MHz 600R
5512	2422 549 44607	IND FXD 0603 EMI 100MHz 600R
5513	4822 157 10586	Coil 2,2uH 10%

DIODES

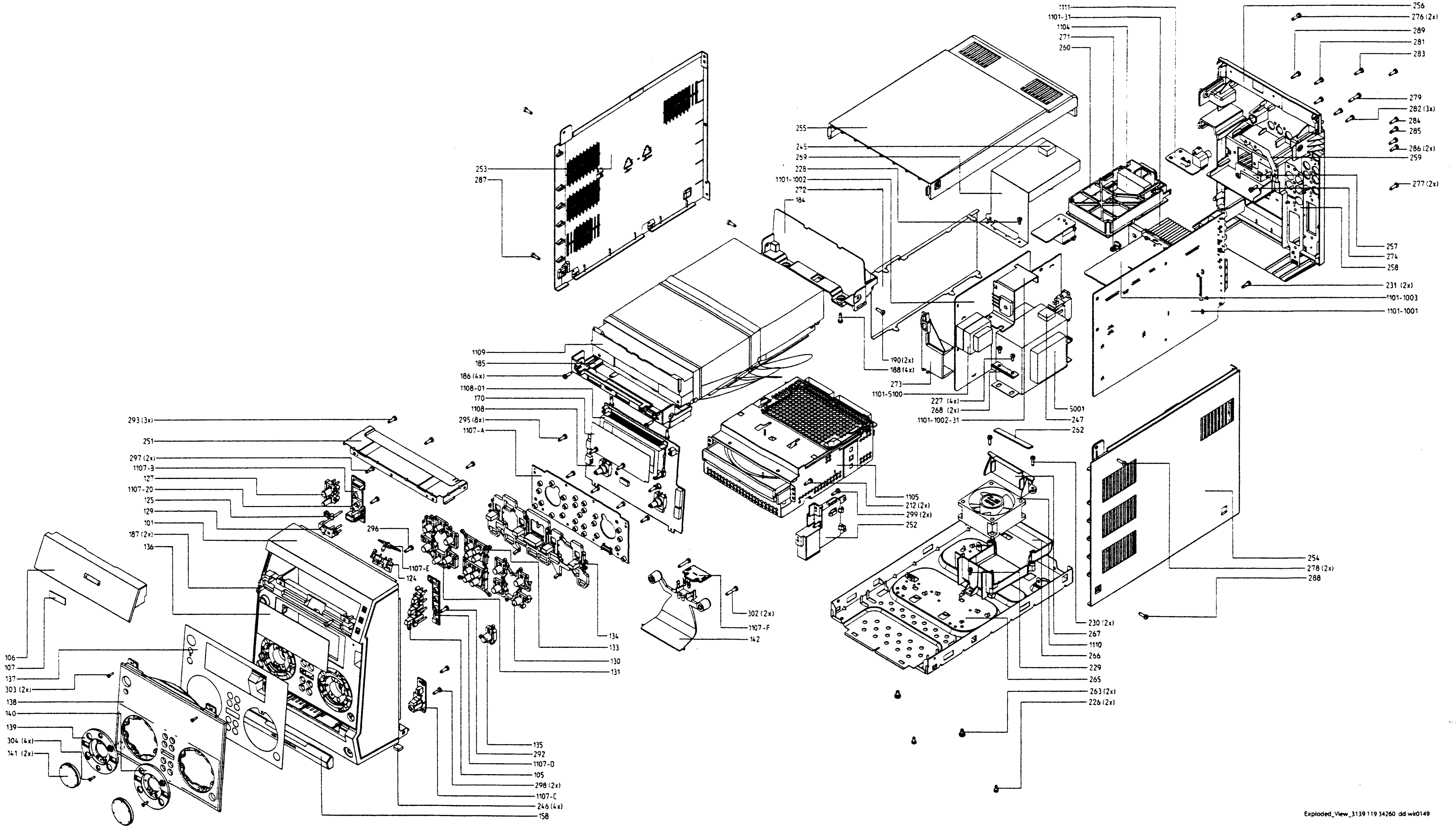
6200	4822 130 31878	1N4003G	
6201	4822 130 31878	1N4003G	
6202	4822 130 31878	1N4003G	
6203	4822 130 31878	1N4003G	
6204	9340 550 66112	BYV28-200/24	
6205	4822 130 34441	BZX79-C22	
6206	4822 130 30621	1N4148	
6207	4822 130 34174	BZX79-B4V7	
6208	4822 130 31024	BZX79-B18	
6209	4822 130 34174	BZX79-B4V7	
6330	4822 130 30621	1N4148	
6509	4822 130 30621	1N4148	
6510	4822 130 30862	BZX55-C9V1	
6511	4822 130 30621	1N4148	
6512	4822 130 30621	1N4148	/22
6513	4822 130 31878	1N4003G	
6520	4822 130 30621	1N4148	
6521	4822 130 30621	1N4148	

TRANSISTORS & INTEGRATED CIRCUITS

7200	9322 133 18682	AN7125P	
7201	4822 130 44568	BC557B	
7202	4822 130 44568	BC557B	
7203	4822 130 40959	BC547B	
7204	4822 130 10847	BDW94C	
7205	4822 130 40959	BC547B	
7206	4822 130 44568	BC557B	
7328	4822 130 44568	BC557B	
7500	4822 130 60511	BC847B	
7501	4822 130 60511	BC847B	
7506	4822 130 60373	BC857B	
7507	4822 130 60511	BC847B	
7508	4822 130 60373	BC857B	
7509	4822 130 60511	BC847B	
7510	4822 209 31378	NJM4556AM	
7511	4822 130 42804	BC817-25	
7512	4822 130 42804	BC817-25	
7514	4822 130 42804	BC817-25	
7515	4822 130 42804	BC817-25	
7516	4822 130 60373	BC857B	
7517	4822 130 60511	BC847B	
7518	4822 130 60511	BC847B	
7519	4822 130 60373	BC857B	
7520	4822 130 60511	BC847B	
7521	4822 130 60511	BC847B	
7522	4822 130 42804	BC817-25	
7523	4822 130 42804	BC817-25	
7524	4822 130 60373	BC857B	
7526	4822 209 17345	M62320FP	
7527	4822 130 41246	BC327-25	
7528	4822 130 60511	BC847B	
7529	4822 209 72042	MC78L05ACP	/22
7540	4822 130 42804	BC817-25	
7541	4822 130 42804	BC817-25	
7550	9322 150 74668	TDA7468D	
7553	4822 130 60511	BC847B	
7555	4822 130 60511	BC847B	/22
7556	4822 130 60511	BC847B	

Note : Only the parts mentioned in this list are normal service spare parts.

SET MECHANICAL EXPLODED VIEW


1111
1101-31
1104
271
260
256
276 (2x)
289
281
283
279
282 (3x)
284
285
286 (2x)
259
277 (2x)
257
274
258
231 (2x)
1101-1003
1101-1001
253
287
255
245
269
228
1101-1002
272
184
190 (2x)
188 (4x)
273
1101-5100
227 (4x)
268 (2x)
1101-1002-31
5001
247
262
1109
185
186 (4x)
1108-01
170
1108
295 (8x)
1107-A
293 (3x)
251
297 (2x)
1107-3
127
1107-20
125
129
101
187 (2x)
136
296
1107-E
124
1105
212 (2x)
299 (2x)
252
254
278 (2x)
288
134
133
130
131
302 (2x)
1107-F
142
230 (2x)
267
1110
266
229
265
263 (2x)
226 (2x)
106
107
137
303 (2x)
138
140
139
304 (4x)
141 (2x)
135
292
1107-D
105
298 (2x)
1107-C
246 (4x)
158

Exploded_View_3139 119 34260 dd wk0149

MECHANICAL & ACCESSORIES PARTS LIST - MAIN UNIT

0101	3139 118 15990	Cabinet Front	/22
0101	3139 118 15800	Cabinet Front	/37
0105	3139 118 15900	Button Set DTC Chrome	
0106	3139 118 14910	Cover Tray DTC	
0107	4822 459 11086	Badge Assembly Philips	
0124	3139 114 73810	Bracket Lightguide	
0127	3139 118 15890	Button Set Power Chrome	
0130	3139 118 15830	Button Set Control Right	
0131	3139 118 15840	Button Set Control Left	
0133	3139 118 15860	Button Set Control Center	
0134	3139 118 15850	Button Set Rect	
0135	3139 118 15910	Button Set O/C CDR Chrome	
0138	3139 118 16010	Lens Display	/22
0138	3139 118 15920	Lens Display	/37
0139	3139 118 15870	Ring Orn Left	
0140	3139 118 16000	Orn Ring Right	/22
0140	3139 118 15880	Ring Orn Right	/37
0141	3139 118 14950	Knob Jog Chrome	
0158	3139 118 15810	Cover Tray CDR Chrome	
0184	3139 114 73670	Bracket Support Rear 3DTC	
0185	3139 114 71630	Bracket DTC Micro	
0189	3139 118 15780	Plate Transport DTC Tray	
0246	3139 113 27140	Foot Rubber 4mm	
0252	3139 114 73650	Bracket Combi Micro	
0253	3139 114 71510	Panel Left Micro	/22
0253	3139 114 75420	Panel Left Micro V2	/37
0254	3139 114 71520	Panel Right Micro	/22
0254	3139 114 75410	Panel Right Micro V2	/37
0255	3139 114 73830	Cover Top Micro	/22
0255	3139 114 75440	Cover Top V2	/37
0256	3139 114 73260	Panel Rear	/22
0256	3139 114 75460	Panel Rear V2	/37
0263	3139 118 79000	Rivet Plastic Dia 4.0	
0271	3139 114 71010	Stopper Heatsink	
0273	3139 114 73840	Bracket Std-By Transformer	/22
0350	3139 118 78530	L/R Loudspeaker Box	/22
0350	3139 118 78520	L/R Loudspeaker Box	/37
0351	4822 303 50063	FM Aerial	/22
0351	4822 320 11094	FM Antenna	/37
0356	3139 118 79560	Remote Control	
0384	2422 549 45067	Antenna AM Loop	
0385	2422 070 98151	△ Mains Cord	/22
0385	2422 070 98152	△ Mains Cord	/37
0386	3139 115 20970	Instruction For Use	/22
0387	3139 115 21330	Instruction For Use-2	/22
0387	3139 115 20960	Instruction For Use	/37
1110	4822 361 11161	Fan KD1206PTS3	
1131	3139 110 35080	FFC Foil 09P/180/09P AD	
1134	3139 110 35240	FFC Foil 08P/280/08P AD Fold	
1135	3139 110 36210	FFC Foil 07P/180/07P AD Fold	
1136	4822 320 12752	FFC Foil 07P/180/07P AD	/22
1136	3139 110 35330	FFC Foil 05P/180/05P AD	/37
1137	3139 110 33940	CWAS FFC BD 04P 180	
1138	3139 110 36080	FFC Foil 11P/180/11P BD 1MMP	
1149	3139 110 36200	FFC Foil 08P/400/08P AD 1MMP	
1161	3139 110 35070	FFC Foil 06P/220/06P AD	
1162	3139 110 34010	FFC Foil 06P/140/06P AD	
1163	4822 320 12604	FFC Foil 09P/220/09P AD	
1164	3139 110 34980	FFC Foil 15P/180/15P AD	
5001	3139 118 32410	△ Mains Transformer	/22
5001	3139 118 32420	△ Mains Transformer	/37

LEFT/RIGHT LOUDSPEAKER BOX BREAKDOWN

9965 000 11535	Grille Assembly
9965 000 11536	Grommet (Grey)

Note : Only the parts mentioned in this list are normal service spare parts.

SCREW LISTS - MAIN UNIT

186	D3 x 10	
187	D3 x 10	
188	D3 x 10	
190	D3 x 10	
212	D3 x 10	
226	M3 x 6	
227	M3 x 6	
228	M3 x 6	
229	M3 x 6	
230	D3 x 10	
231	M3 x 10	
274	D3 x 8	
276	D3 x 12	
277	M3 x 10	
278	D3 x 10	
279	D3 x 16	
281	D3 x 10	
282	D3 x 10	
283	D3 x 10	
284	D3 x 10	
285	D3 x 10	
286	D3 x 10	
287	D3 x 10	
288	D3 x 10	
289	D3 x 10	/22
292	D3 x 10	
293	D3 x 10	
295	D3 x 10	
296	D3 x 10	
297	D3 x 10	
298	D3 x 10	
299	D3 x 10	
302	D3 x 10	
303	D2 x 8	
304	D2 x 8	

MC-90

A02 - 175

Service
Service
Service

Product Service Group CE Audio

Service Information

Already published Service Informations :

CHANGES DURING PRODUCTION

FRONT DISPLAY BOARD

*From production week 0212 onwards pt.2 Board (identified by the last digit of the 12NC - 3139 113 34562) is introduced. For this reason new layout and circuit drawing are enclosed.

Reason : To solve standby LED partially ON problem.

Add	9157	Bare wire
Delete	6124	

REGULATOR BOARD

* From production week 0208 onwards the following has been added to improve LW/MW sensitivity.

Add	2420	4822 124 40248	10uF 20% 63V

*From production week 0222 onwards pt.5 Board (identified by the last digit of the 12NC - 3139 113 34415) is introduced. For this reason new layout and circuit drawing are enclosed.

Reasons:
i. PCB update for standardization.

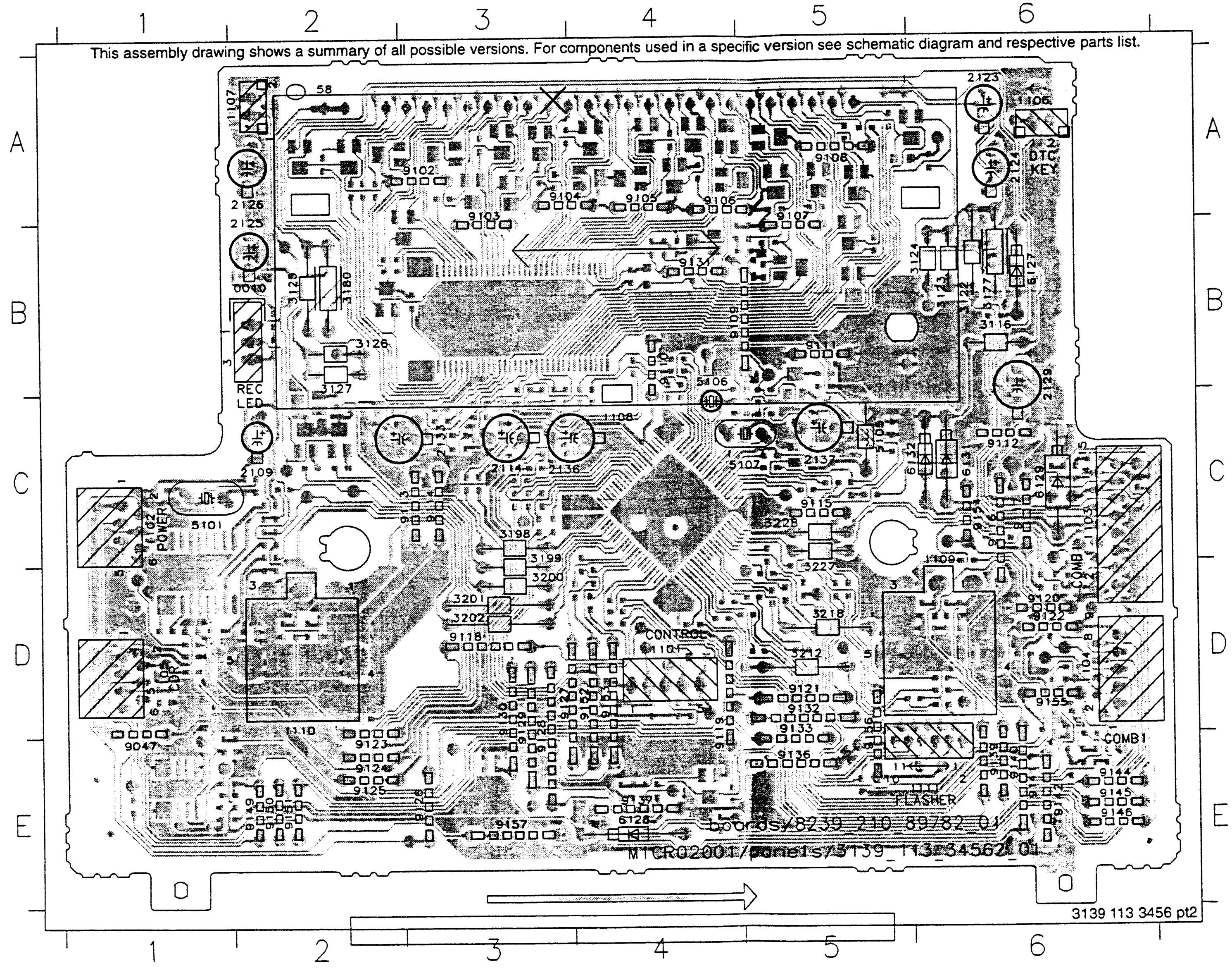
ii. To prevent obstruction during assembly.
Change 2420 4822 124 12255 10uF 20% 50V

30 - 09 - 2002

3139 785 30091

FRONT DISPLAY BOARD

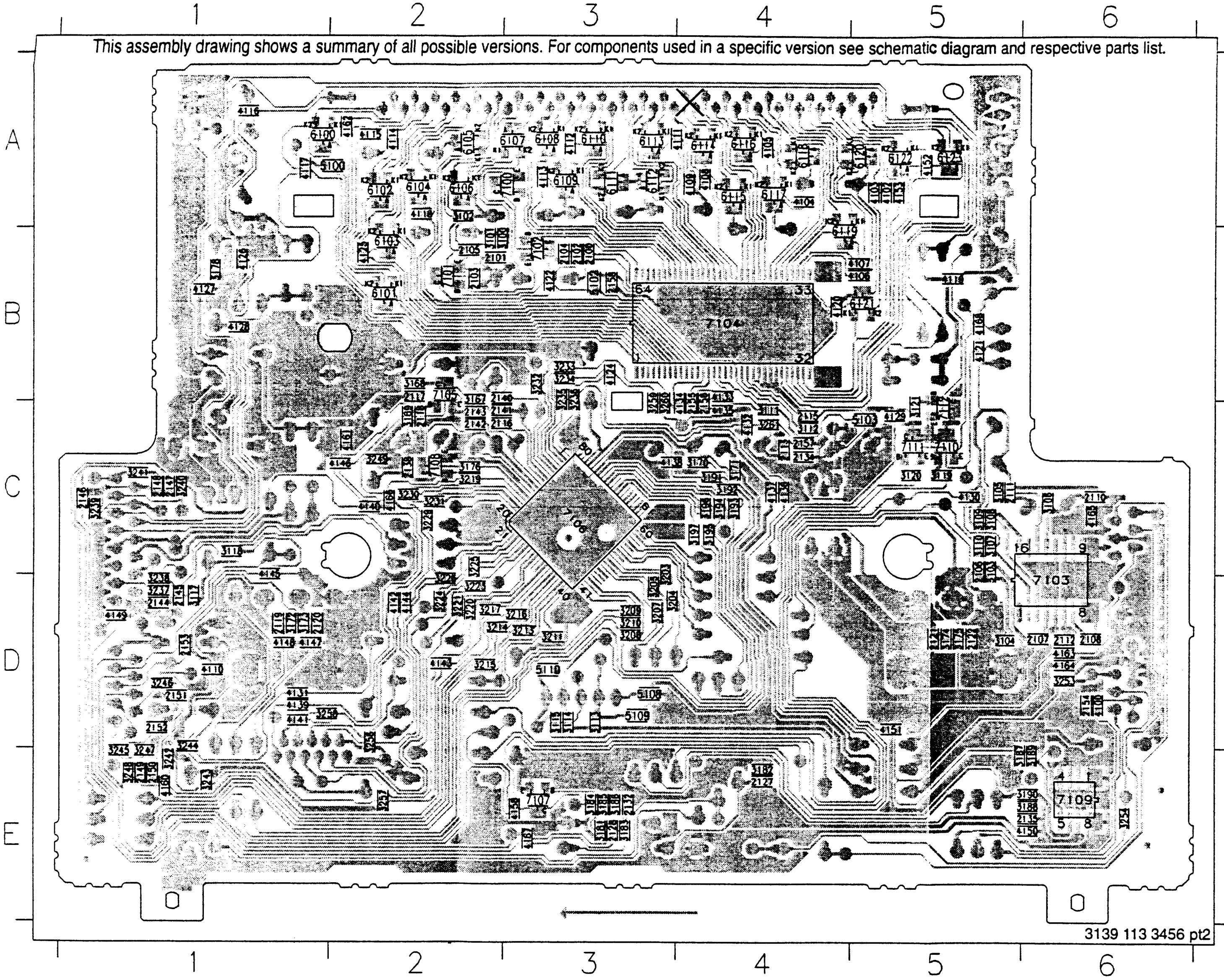
FRONT DISPLAY BOARD - COMPONENT LAYOUT


This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

1
2
3
4
5
6
A
B
C
D
E
REC LED
POWER
CONTROL
FLASHER
COMB1
DTC KEY
boards/8239 210 89782 01
MICRO2001/panels/3139 113 34562 01
3139 113 3456 pt2

0010	B2
1101	D4
1102	C1
1103	C6
1104	D6
1105	D1
1106	A6
1107	A2
1108	C4
1109	C6
1110	D2
1111	E6
2109	C2
2114	C3
2123	A6
2124	A6
2125	A2
2126	A2
2129	B6
2133	C3
2136	C3
2137	C5
3116	B6
3122	B6
3123	B6
3124	B6
3125	B2
3126	B2
3127	B2
3177	B6
3180	B2
3198	C3
3199	C3
3200	D3
3201	D3
3202	D3
3212	D5
3218	D5
3227	D5
3228	C5
5101	C1
5105	C5
5106	B4
5107	C5
6127	B6
6128	E4
6129	C6
6131	C6
6132	C6
9047	E1
9102	A3
9103	A3
9104	A3
9105	A4
9106	A4
9107	A5
9108	A5
9109	B4
9110	B4
9111	B5
9112	C6
9113	C3
9114	C3
9115	C5
9116	C6
9117	C6
9118	D3
9119	D4
9120	D6
9121	D5
9122	D6
9123	E2
9124	E2
9125	E2
9126	E3
9127	D3
9128	D3
9129	D3
9130	D3
9131	B4
9132	D5
9133	D5
9136	E5
9137	E4
9139	E6
9140	E6
9141	E6
9142	E6
9144	E6
9145	E6
9146	E6
9149	E2
9150	E2
9151	E2
9152	D4
9153	D4
9154	C6
9155	D6
9156	E5
9157	E3

FRONT DISPLAY BOARD - CHIP LAYOUT

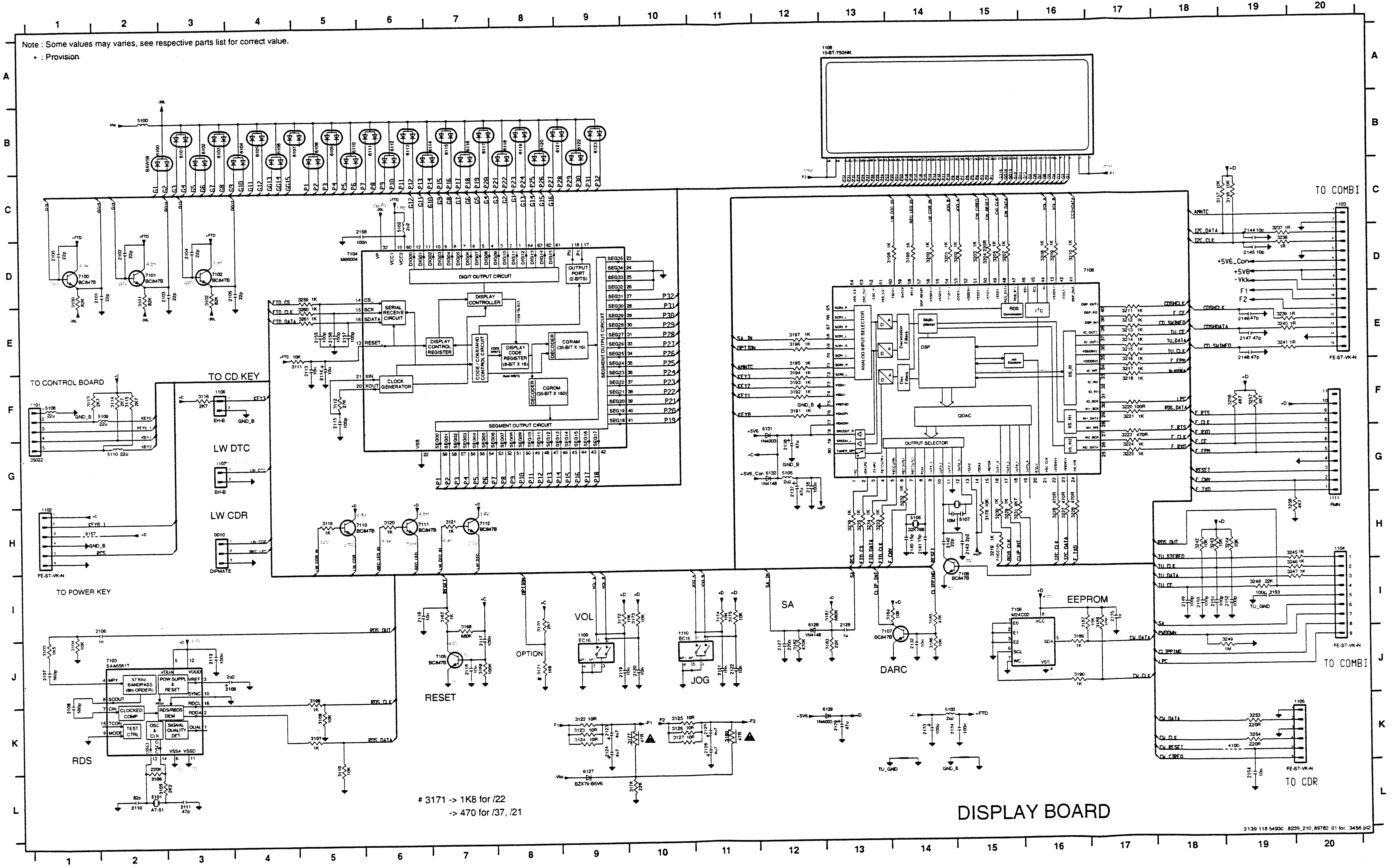


This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

2100	B3
2101	B2
2102	B3
2103	B2
2104	B3
2105	B2
2106	C5
2107	D6
2108	D6
2110	C6
2111	C5
2112	D6
2113	C4
2115	C4
2116	C2
2117	B2
2118	C2
2119	D1
2120	D1
2121	D5
2122	D5
2127	E4
2128	E3
2132	E3
2134	C4
2135	E6
2138	C2
2140	B2
2141	C2
2142	C2
2143	C2
2144	D1
2145	D1
2146	C1
2147	C1
2148	C1
2149	E1
2150	E1
2151	D1
2152	D1
2153	D1
2154	D6
2155	C4
2156	C4
2157	C4
2158	B3
3100	B2
3101	B2
3102	A2
3103	C5
3104	D5
3105	C5
3106	C6
3107	C5
3108	C5
3109	C5
3110	C5
3111	C4
3112	C4
3113	D3
3114	D3
3115	D3
3117	D1
3118	C1
3119	C5
3120	C5
3121	C5
3167	B2
3168	B2
3169	C2
3170	C4
3171	C4
3172	D1
3173	D1
3174	D5
3175	D5
3176	C2
3178	B1
3181	E3
3182	E4
3183	E3
3184	E3
3185	E3
3186	E3
3187	E5
3188	E6
3189	E6
3190	E6
3191	C4
3192	C4
3193	C4
3194	C4
3195	C4
3196	C4
3197	C4
3203	D3
3204	D3
3205	D3
3207	D3
3208	D3
3209	D3
3210	D3
3211	D3
3213	D3
3214	D2
3215	D2
3216	D3
3217	D2
3219	C2
3220	D2
3221	D2
3223	D2
3224	D2
3225	C2
3226	D2
3229	C2
3230	C2
3231	C2
3232	B3
3233	B3
3234	B3
3235	B3
3236	B3
3237	D1
3238	D1
3239	C1
3240	C1
3241	C1
3242	E1
3243	E1
3244	D1
3245	E1
3246	D1
3247	E1
3248	E1
3249	C2
3253	D6
3254	E6
3256	D2
3257	E2
3258	D1
3259	C3
3260	C3
3261	C4
4100	D6
4102	A5
4103	A5
4104	A4
4105	A4
4106	B5
4107	B5
4108	A4
4109	A4
4110	D1
4111	A4
4112	A3
4113	A3
4114	A2
4115	A2
4116	A1
4117	A1
4118	A2
4119	B5
4120	B4
4121	B5
4122	B3
4124	B3
4125	B2
4126	B1
4127	B1
4128	B1
4129	C5
4130	C5
4131	D1
4132	C4
4133	B4
4134	C4
4135	C4
4136	C4
4137	C4
4138	C3
4139	D1
4140	C2
4141	D1
4142	D2
4143	D2
4144	D2
4145	C1
4146	C2
4147	D1
4148	D1
4149	D1
4150	E6
4151	D5
4152	A5
4153	A5
4158	E3
4160	E1
4161	C2
4162	A2
4163	D6
4164	D6
4165	C6
4166	C2
4167	E3
4168	B5
5100	A2
5102	B3
5103	C5
5108	D3
5109	D3
5110	D3
6100	A1
6101	B2
6102	A2
6103	B2
6104	A2
6105	A2
6106	A2
6107	A3
6108	A3
6109	A3
6110	A3
6111	A3
6112	A3
6113	A3
6114	A4
6115	A4
6116	A4
6117	A4
6118	A4
6119	B4
6120	A5
6121	B5
6122	A5
6123	A5
7100	A3
7101	B2
7102	B3
7103	D6
7104	B4
7105	B2
7106	C3
7107	E3
7108	C2
7109	E6
7110	C5
7111	C5
7112	C5

FRONT DISPLAY BOARD - CIRCUIT DIAGRAM

0010	H3
1101	F1
1102	H1
1103	C20
1104	H20
1105	K19
1106	F3
1107	G3
1108	A13
1109	J9
1110	J10
1111	H20
2100	D1
2101	D2
2102	D2
2103	D3
2104	D3
2105	D4
2106	I2
2107	J1
2108	J1
2109	J3
2110	L2
2111	L3
2112	J3
2113	E5
2114	F5
2115	F5
2116	I6
2117	J7
2118	J7
2119	J9
2120	J10
2121	J11
2122	J11
2123	K9
2124	K9
2125	K11
2126	K11
2127	J12
2128	I13
2129	K13
2132	J14
2133	K14
2134	K14
2135	I17
2136	G12
2137	G12
2138	G12
2140	H14
2141	H14
2142	H14
2143	H15
2144	D19
2145	D19
2146	E19
2147	E19
2148	F19
2149	I18
2150	I18
2151	I18
2152	I19
2153	I19
2154	L19
2155	E6
2156	E5
2157	E5
2158	C6
3100	D1
3101	D2
3102	D3
3103	J1
3104	J1
3105	L2
3106	L2
3107	K5
3108	J5
3109	K5
3110	K5
3111	E5
3112	F5
3113	F1
3114	F2
3115	F2
3116	F3
3117	C19
3118	C19
3119	H5
3120	H6
3121	H7
3122	K9
3123	K9
3124	K9
3125	K10
3126	K10
3127	K10
3167	I7
3168	I7
3169	J7
3170	I8
3171	J8
3172	I9
3173	I10
3174	I11
3175	I11
3176	H15
3177	K10
3178	L10
3180	K11
3181	I13
3182	J12
3183	J13
3184	I13
3185	I14
3186	J14
3187	I16
3188	I17
3189	J16
3190	J16
3191	F12
3192	F12
3193	F12
3194	F12
3195	E12
3196	E12
3197	E12
3198	D14
3199	D14
3200	D14
3201	D14
3202	D15
3203	D15
3204	D15
3205	D15
3207	D15
3208	D16
3209	D16
3210	D16
3211	E17
3212	E17
3213	E17
3214	E17
3215	E17
3216	E17
3217	F17
3218	F17
3219	H15
3220	F17
3221	F17
3223	G17
3224	G17
3225	G17
3226	H16
3227	H16
3228	H16
3229	H15
3230	H15
3231	H15
3232	H14
3233	H13
3234	H13
3235	H13
3236	H13
3237	D19
3238	D19
3239	E19
3240	E19
3241	E19
3242	H18
3243	H18
3244	H19
3245	H19
3246	I19
3247	I19
3248	I19
3249	J19
3253	K19
3254	K19
3256	F19
3257	F19
3258	H19
3259	D5
3260	E5
3261	E5
4100	K19
5100	B2
5101	L2
5102	C6
5103	K14
5105	G12
5106	H14
5107	H15
5108	F1
5109	F2
5110	G2
6100	B2
6101	B3
6102	B3
6103	B3
6104	B4
6105	B4
6106	B4
6107	B5
6108	B5
6109	B5
6110	B5
6111	B6
6112	B6
6113	B6
6114	B7
6115	B7
6116	B7
6117	B7
6118	B8
6119	B8
6120	B8
6121	B9
6122	B9
6123	B9
6127	L9
6128	I12
6129	K13
6131	F12
6132	G12
7100	D1
7101	D2
7102	D3
7103	J2
7104	D5
7105	J7
7106	D17
7107	J14
7108	I15
7109	I15
7110	H5
7111	H6
7112	H7
9157	H1


1108
15-BT-75GNK
TO COMBI
1103
TO CONTROL BOARD
TO CD KEY
LW DTC
LW CDR
TO POWER KEY
7104
M66004
DIGIT OUTPUT CIRCUIT
SERIAL RECEIVE CIRCUIT
DISPLAY CONTROLLER
DISPLAY CONTROL REGISTER
CODE / COMMAND CONTROL CIRCUIT
DISPLAY CODE REGISTER (8-BIT X 16)
DECODER
CGRAM (35-BIT X 16)
CGROM (35-BIT X 160)
CLOCK GENERATOR
OUTPUT PORT (2-BITS)
SEGMENT OUTPUT CIRCUIT
7106
ANALOG INPUT SELECTOR
DSP
QDAC
OUTPUT SELECTOR
RDS Demodulator
I²C
7100 BC847B
7101 BC847B
7102 BC847B
7110 BC847B
7111 BC847B
7112 BC847B
7103 SAA6581T
57 Khz BANDPASS (8th ORDER)
POW SUPPLY & RESET
CLOCKED COMP
RDS/RBDS DEM
TEST CTRL
OSC & CLK
SIGNAL QUALITY DET
RDS
RESET
OPTION
VOL
JOG
SA
DARC
EEPROM
7109 M24C02
FE-ST-VK-N
TO CDR
1111
FMN
35022
EH-B
DIPMATE
BAW56
BZX79-B5V6
1N4003
1N4148
AT-51
32K768

Note : Some values may varies, see respective parts list for correct value.

• : Provision

3171 -> 1K8 for /22

-> 470 for /37, /21

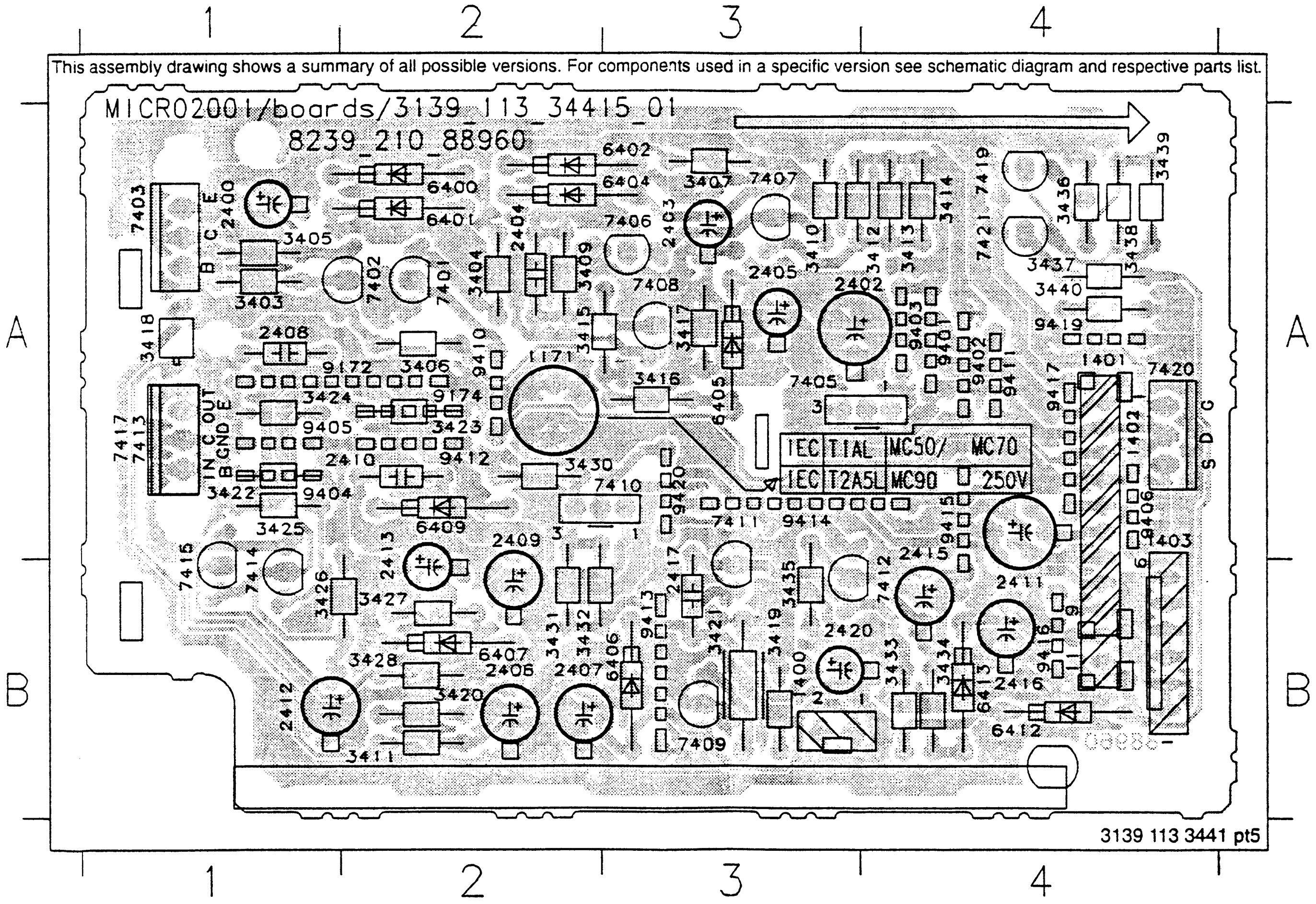
DISPLAY BOARD

3139 118 54930...8239_210_89782_01 for...3456 pt2

REGULATOR BOARD

REGULATOR BOARD - COMPONENT SIDE VIEW

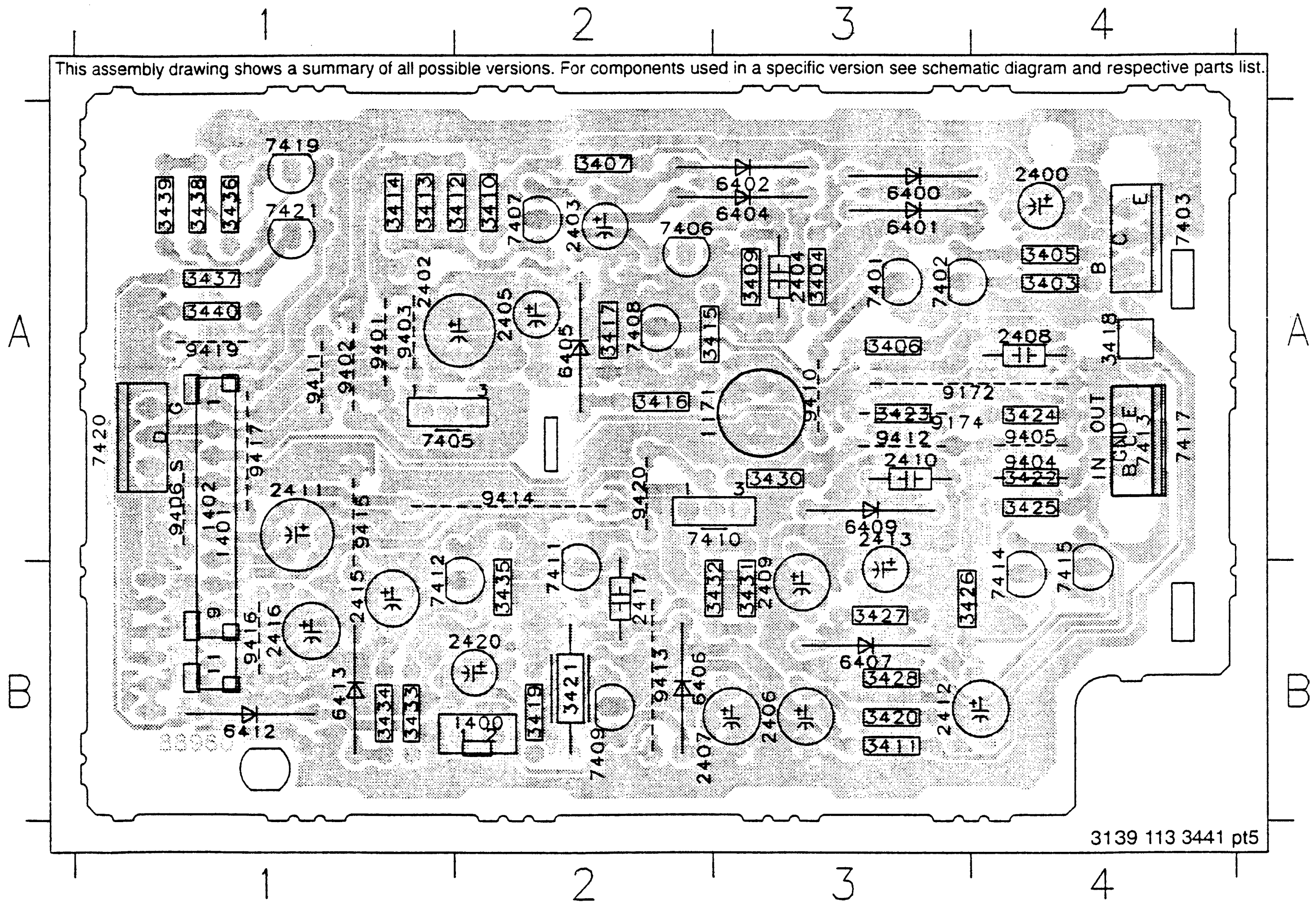
1171	A2	2408	A1	3405	A1	3418	A1	3431	B2	6402	A3	7406	A3	7420	A4	9412	A2
1400	B3	2409	A2	3406	A2	3419	B3	3432	B2	6404	A3	7407	A3	7421	A4	9413	B3
1401	A4	2410	A2	3407	A3	3420	B2	3433	B4	6405	A3	7408	A3	9172	A2	9414	A3
1402	A4	2411	B4	3409	A2	3421	B3	3434	B4	6406	B3	7409	B3	9174	A2	9415	A4
1403	A4	2412	B1	3410	A3	3422	A1	3435	B3	6407	B2	7410	A3	9401	A4	9416	B4
2400	A1	2413	A2	3411	B2	3423	A2	3436	A4	6409	A2	7411	A3	9402	A4	9417	A4
2402	A3	2415	A4	3412	A4	3424	A1	3437	A4	6412	B4	7412	B4	9403	A4	9419	A4
2403	A3	2416	B4	3413	A4	3425	A1	3438	A4	6413	B4	7413	A1	9404	A1	9420	A3
2404	A2	2417	B3	3414	A4	3426	B1	3439	A4	7401	A2	7414	B1	9405	A1		
2405	A3	2420	B3	3415	A2	3427	B2	3440	A4	7402	A2	7415	B1	9406	A4		
2406	B2	3403	A1	3416	A3	3428	B2	6400	A2	7403	A1	7417	A1	9410	A2		
2407	B2	3404	A2	3417	A3	3430	A2	6401	A2	7405	A3	7419	A4	9411	A4		


This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

3139 113 3441 pt5

REGULATOR BOARD - COPPER SIDE VIEW

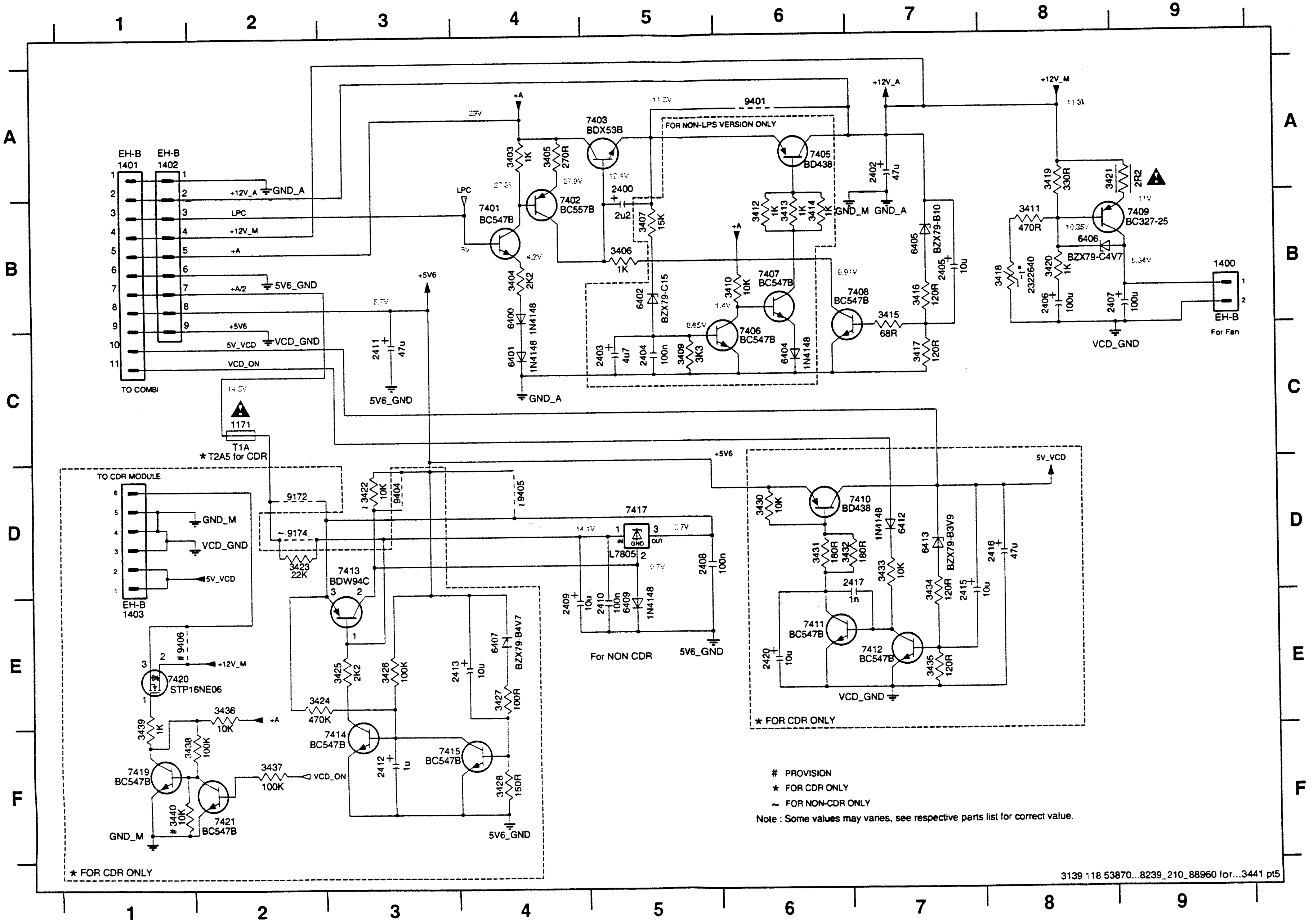
1171	A2	2409	B3	3406	A3	3419	B2	3432	B3	6404	A3	7407	A2	7421	A1	9413	B2
1400	B2	2410	A3	3407	A2	3420	B3	3433	B1	6405	A2	7408	A2	9172	A3	9414	A2
1401	A1	2411	A1	3409	A3	3421	B2	3434	B1	6406	B2	7409	B2	9174	A3	9415	A1
1402	A1	2412	B3	3410	A2	3422	A4	3435	B2	6407	B3	7410	A3	9401	A1	9416	B1
2400	A4	2413	A3	3411	B3	3423	A3	3436	A1	6409	A3	7411	B2	9402	A1	9417	A1
2402	A1	2415	B1	3412	A2	3424	A4	3437	A1	6412	B1	7412	B1	9403	A1	9419	A1
2403	A2	2416	B1	3413	A1	3425	A4	3438	A1	6413	B1	7413	A4	9404.	A4	9420	A2
2404	A3	2417	B2	3414	A1	3426	B3	3439	A1	7401	A3	7414	B4	9405	A4		
2405	A2	2420	B2	3415	A2	3427	B3	3440	A1	7402	A3	7415	B4	9406	A1		
2406	B3	3403	A4	3416	A2	3428	B3	6400	A3	7403	A4	7417	A4	9410	A3		
2407	B2	3404	A3	3417	A2	3430	A3	6401	A3	7405	A1	7419	A1	9411	A1		
2408	A4	3405	A4	3418	A4	3431	B3	6402	A3	7406	A2	7420	A1	9412	A3		


This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

3139 113 3441 pt5

REGULATOR BOARD - CIRCUIT DIAGRAM

1171 C2
1400 B9
1401 A1
1402 A1
1403 E1
2400 A5
2402 A7
2403 C5
2404 C5
2405 B7
2406 B8
2407 B9
2408 D5
2409 E4
2410 E5
2411 C3
2412 F3
2413 E4
2415 D7
2416 D8
2417 D7
2420 E6
3403 A4
3404 B4
3405 A4
3406 B5
3407 B5
3409 C5
3410 B6
3411 B8
3412 B6
3413 B6
3414 B6
3415 B7
3416 B7
3417 C7
3418 B8
3419 A8
3420 B8
3421 A9
3422 D3
3423 D2
3424 E2
3425 E3
3426 E3
3427 E4
3428 F4
3430 D6
3431 D6
3432 D6
3433 D7
3434 D7
3435 E7
3436 E2
3437 F2
3438 F1
3439 E1
3440 F1
6400 B4
6401 C4
6402 B5
6404 C6
6405 B7
6406 B8
6407 E4
6409 E5
6412 D7
6413 D7
7401 B4
7402 A4
7403 A5
7405 A6
7406 C6
7407 B6
7408 B7
7409 B9
7410 D7
7411 E6
7412 E7
7413 D3
7414 F3
7415 F4
7417 D5
7419 F1
7420 E1
7421 F2
9172 D2
9174 D2
9401 A6
9404 D3
9405 D4
9406 E1


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
EH-B
1401
EH-B
1402
+12V_A
GND_A
LPC
+12V_M
+A
5V6_GND
+A/2
+5V6
VCD_GND
5V_VCD
VCD_ON
TO COMBI
3403
1K
3405
270R
7403
BDX53B
FOR NON-LPS VERSION ONLY
7405
BD438
9401
+12V_A
2402
47u
7401
BC547B
7402
BC557B
2400
2u2
3407
15K
3412
1K
3413
1K
3414
1K
GND_M
GND_A
3406
1K
3404
2K2
6400
1N4148
6401
1N4148
GND_A
6402
BZX79-C15
3410
10K
7407
BC547B
7406
BC547B
2403
4u7
2404
100n
3409
3K3
6404
1N4148
7408
BC547B
3415
68R
6405
BZX79-B10
3416
120R
3417
120R
2405
10u
2411
47u
5V6_GND
+5V6
+12V_M
3419
330R
3421
2R2
7409
BC327-25
3411
470R
6406
BZX79-C4V7
3418
2322640
3420
1K
2406
100u
2407
100u
VCD_GND
1400
EH-B
For Fan
1171
T1A
★T2A5 for CDR
TO CDR MODULE
GND_M
VCD_GND
5V_VCD
EH-B
1403
9172
9174
3423
22K
3422
10K
9404
9405
7413
BDW94C
7417
L7805
IN
GND
OUT
2408
100n
2409
10u
2410
100n
6409
1N4148
For NON CDR
5V6_GND
3430
10K
7410
BD438
5V_VCD
3431
180R
3432
180R
6412
1N4148
6413
BZX79-B3V9
3433
10K
2416
47u
2417
1n
3434
120R
2415
10u
7411
BC547B
7412
BC547B
2420
10u
3435
120R
VCD_GND
★ FOR CDR ONLY
9406
+12V_M
7420
STP16NE06
3436
10K
3439
1K
3438
100K
3437
100K
VCD_ON
7419
BC547B
7421
BC547B
3440
10K
GND_M
★ FOR CDR ONLY
3425
2K2
3426
100K
2413
10u
6407
BZX79-B4V7
3427
100R
3424
470K
7414
BC547B
7415
BC547B
2412
1u
3428
150R
5V6_GND

# PROVISION
★ FOR CDR ONLY
~ FOR NON-CDR ONLY
Note : Some values may varies, see respective parts list for correct value.

3139 118 53870...8239_210_88960 for...3441 pt5

MISCELLANEOUS

1102	4822 265 11207	Flex Connector 6P
1103	4822 265 10979	Flex Connector 15P
1104	4822 265 11531	Flex Connector 9P
1105	4822 265 11207	Flex Connector 6P
1108	3139 110 52830	FTD Display
1109	2422 129 16501	Rotary Encoder 12P
1110	2422 129 16689	Rotary Encoder 12P
1111	2422 025 16981	Flex Connector 11P

CAPACITORS

2100	4822 122 33761	22pF 5% 50V	
2101	4822 122 33761	22pF 5% 50V	
2102	4822 122 33761	22pF 5% 50V	
2103	4822 122 33761	22pF 5% 50V	
2104	4822 122 33761	22pF 5% 50V	
2105	4822 122 33761	22pF 5% 50V	
2106	3198 016 31020	1nF 25V	/22
2107	4822 126 14249	560pF 10% 50V	/22
2108	4822 126 14249	560pF 10% 50V	/22
2109	4822 124 22652	2,2uF 20% 50V	/22
2110	4822 126 14226	82pF 5% 50V	/22
2111	4822 122 33777	47pF 5% 63V	/22
2112	4822 126 14305	100nF 10% 16V	/22
2113	5322 126 11583	10nF 10% 50V	
2114	4822 124 11947	10uF 20% 16V	
2115	4822 122 31765	100pF 2% 63V	
2116	5322 126 11583	10nF 10% 50V	
2117	4822 126 14305	100nF 10% 16V	
2118	5322 126 11583	10nF 10% 50V	
2119	5322 126 11583	10nF 10% 50V	
2120	5322 126 11583	10nF 10% 50V	
2121	5322 126 11583	10nF 10% 50V	
2122	5322 126 11583	10nF 10% 50V	
2123	4822 124 40769	4,7uF 20% 100V	
2124	4822 124 40769	4,7uF 20% 100V	
2125	4822 124 12032	4,7uF 20% 50V	
2126	4822 124 12032	4,7uF 20% 50V	
2127	4822 126 13879	220nF +80/-20% 16V	
2128	3198 017 41050	1uF 10V	
2129	4822 124 81286	47uF 20% 16V	
2132	5322 126 11583	10nF 10% 50V	
2133	4822 124 23432	100uF 20% 10V	
2134	4822 126 14305	100nF 10% 16V	
2135	3198 017 41050	1uF 10V	
2136	4822 124 81286	47uF 20% 16V	
2137	4822 124 81286	47uF 20% 16V	
2138	4822 126 14305	100nF 10% 16V	
2140	4822 122 33752	15pF 5% 50V	
2141	4822 122 33752	15pF 5% 50V	
2142	4822 122 33761	22pF 5% 50V	
2143	4822 126 14223	2,2pF 50V	
2144	4822 122 33741	10pF 10% 50V	
2145	4822 122 33741	10pF 10% 50V	
2146	4822 122 33777	47pF 5% 63V	
2147	4822 122 33777	47pF 5% 63V	
2148	4822 122 33777	47pF 5% 63V	
2149	4822 122 31765	100pF 2% 63V	
2150	4822 122 31765	100pF 2% 63V	
2151	4822 122 31765	100pF 2% 63V	
2152	4822 122 31765	100pF 2% 63V	
2153	4822 122 31765	100pF 2% 63V	
2154	5322 126 11583	10nF 10% 50V	
2155	4822 122 31765	100pF 2% 63V	
2157	4822 122 31765	100pF 2% 63V	
2158	4822 126 14305	100nF 10% 16V	

RESISTORS

3100	4822 117 12864	82k 5% 0,6W	
3101	4822 117 12864	82k 5% 0,6W	
3102	4822 117 12864	82k 5% 0,6W	
3103	4822 051 30152	1k5 5% 0,062W	/22
3104	4822 051 30103	10k 5% 0,062W	/22
3105	4822 051 30222	2k2 5% 0,062W	/22
3106	4822 117 12891	220k 1%	/22
3107	4822 051 30102	1k 5% 0,062W	/22
3108	4822 051 30102	1k 5% 0,062W	/22
3109	4822 051 30103	10k 5% 0,062W	/37
3110	4822 051 30103	10k 5% 0,062W	/37
3111	4822 051 30103	10k 5% 0,062W	
3112	4822 051 30273	27k 5% 0,062W	
3113	4822 051 30272	2k7 5% 0,062W	
3114	4822 051 30272	2k7 5% 0,062W	
3115	4822 051 30272	2k7 5% 0,062W	
3116	4822 116 52263	2k7 5% 0,5W	
3117	4822 051 30103	10k 5% 0,062W	
3118	4822 051 30103	10k 5% 0,062W	
3119	4822 051 30102	1k 5% 0,062W	
3120	4822 051 30102	1k 5% 0,062W	
3121	4822 051 30102	1k 5% 0,062W	
3122	4822 116 52176	10R 5% 0,5W	
3123	4822 116 52176	10R 5% 0,5W	
3124	4822 116 52176	10R 5% 0,5W	
3125	4822 116 52176	10R 5% 0,5W	
3126	4822 116 52176	10R 5% 0,5W	
3127	4822 116 52176	10R 5% 0,5W	
3167	4822 051 30102	1k 5% 0,062W	
3168	4822 051 30684	680k 5% 0,062W	
3169	4822 117 13632	100k 1% 0,62W	
3170	4822 051 30272	2k7 5% 0,062W	
3171	4822 117 12903	1k8 1% 0,063W	/22
3171	4822 051 30471	470R 5% 0,062W	/37
3172	4822 051 30103	10k 5% 0,062W	
3173	4822 051 30103	10k 5% 0,062W	
3174	4822 051 30103	10k 5% 0,062W	

3175	4822 051 30103		10k 5% 0,062W	
3176	4822 051 30103		10k 5% 0,062W	
3177	4822 052 10479	△	47R 5% 0,33W	
3178	4822 051 30223		22k 5% 0,062W	
3180	4822 052 10479	△	47R 5% 0,33W	
3181	4822 051 30684		680k 5% 0,062W	
3182	4822 051 30474		470k 5% 0,062W	
3183	4822 051 30223		22k 5% 0,062W	
3184	4822 051 30103		10k 5% 0,062W	
3185	4822 117 12925		47k 1% 0,063W	
3186	4822 051 30103		10k 5% 0,062W	
3187	4822 051 30103		10k 5% 0,062W	
3188	4822 051 30103		10k 5% 0,062W	
3189	4822 051 30102		1k 5% 0,062W	
3190	4822 051 30102		1k 5% 0,062W	
3191	4822 051 30102		1k 5% 0,062W	
3192	4822 051 30102		1k 5% 0,062W	
3193	4822 051 30102		1k 5% 0,062W	
3194	4822 051 30102		1k 5% 0,062W	
3195	4822 051 30102		1k 5% 0,062W	
3196	4822 051 30102		1k 5% 0,062W	
3197	4822 051 30102		1k 5% 0,062W	
3198	4822 050 11002		1k 1% 0,4W	
3199	4822 050 11002		1k 1% 0,4W	
3200	4822 050 11002		1k 1% 0,4W	
3201	4822 050 11002		1k 1% 0,4W	
3202	4822 050 11002		1k 1% 0,4W	
3203	4822 051 30102		1k 5% 0,062W	
3204	4822 051 30221		220R 5% 0,062W	
3205	4822 051 30102		1k 5% 0,062W	
3207	4822 051 30102		1k 5% 0,062W	
3208	4822 051 30102		1k 5% 0,062W	
3209	4822 051 30102		1k 5% 0,062W	
3210	4822 051 30102		1k 5% 0,062W	
3211	4822 051 30102		1k 5% 0,062W	
3212	4822 050 11002		1k 1% 0,4W	
3213	4822 051 30102		1k 5% 0,062W	
3214	4822 051 30102		1k 5% 0,062W	
3215	4822 051 30102		1k 5% 0,062W	
3216	4822 051 30102		1k 5% 0,062W	
3217	4822 051 30102		1k 5% 0,062W	
3218	4822 050 11002		1k 1% 0,4W	
3219	4822 051 30102		1k 5% 0,062W	
3220	4822 051 30101		100R 5% 0,062W	/22
3220	4822 051 30102		1k 5% 0,062W	/37
3221	4822 051 30102		1k 5% 0,062W	
3223	4822 051 30471		470R 5% 0,062W	
3224	4822 051 30102		1k 5% 0,062W	
3225	4822 051 30102		1k 5% 0,062W	
3226	4822 051 30471		470R 5% 0,062W	
3227	4822 116 83883		470R 5% 0,5W	
3228	4822 116 83883		470R 5% 0,5W	

3229	4822 051 30102	1k 5% 0,062W
3230	4822 051 30102	1k 5% 0,062W
3231	4822 051 30472	4k7 5% 0,062W
3232	4822 051 30102	1k 5% 0,062W
3233	4822 051 30102	1k 5% 0,062W
3234	4822 051 30102	1k 5% 0,062W
3235	4822 051 30102	1k 5% 0,062W
3236	4822 051 30102	1k 5% 0,062W
3237	4822 117 12917	1R 5% 0,062W
3238	4822 117 12917	1R 5% 0,062W
3239	4822 117 12917	1R 5% 0,062W
3240	4822 117 12917	1R 5% 0,062W
3241	4822 117 12917	1R 5% 0,062W
3242	4822 051 30103	10k 5% 0,062W
3243	4822 051 30103	10k 5% 0,062W
3244	4822 051 30103	10k 5% 0,062W
3245	4822 051 30102	1k 5% 0,062W
3246	4822 051 30102	1k 5% 0,062W
3247	4822 051 30102	1k 5% 0,062W
3248	4822 051 30223	22k 5% 0,062W
3249	4822 051 30105	1M 5% 0,062W
3253	4822 051 30221	220R 5% 0,062W
3254	4822 051 30221	220R 5% 0,062W
3256	4822 051 30472	4k7 5% 0,062W
3257	4822 051 30472	4k7 5% 0,062W
3258	4822 051 30472	4k7 5% 0,062W
3259	4822 051 30102	1k 5% 0,062W
3260	4822 051 30102	1k 5% 0,062W
3261	4822 051 30102	1k 5% 0,062W
4100	4822 051 30008	0R Jumper 0603
4102	4822 051 30008	0R Jumper 0603
4103	4822 051 30008	0R Jumper 0603
4104	4822 051 30008	0R Jumper 0603
4105	4822 051 30008	0R Jumper 0603
4106	4822 051 30008	0R Jumper 0603
4107	4822 051 30008	0R Jumper 0603
4108	4822 051 30008	0R Jumper 0603
4109	4822 051 30008	0R Jumper 0603
4110	4822 051 30008	0R Jumper 0603
4111	4822 051 30008	0R Jumper 0603
4112	4822 051 30008	0R Jumper 0603
4113	4822 051 30008	0R Jumper 0603
4114	4822 051 30008	0R Jumper 0603
4115	4822 051 30008	0R Jumper 0603
4116	4822 051 30008	0R Jumper 0603
4117	4822 051 30008	0R Jumper 0603
4118	4822 051 30008	0R Jumper 0603
4119	4822 051 30008	0R Jumper 0603
4120	4822 051 30008	0R Jumper 0603
4121	4822 051 30008	0R Jumper 0603
4122	4822 051 30008	0R Jumper 0603
4124	4822 051 30008	0R Jumper 0603

ELECTRICAL PARTS LIST - FRONT DISPLAY BOARD

RESISTORS

4125	4822 051 30008	0R Jumper 0603
4126	4822 051 30008	0R Jumper 0603
4127	4822 051 30008	0R Jumper 0603
4128	4822 051 30008	0R Jumper 0603
4129	4822 051 30008	0R Jumper 0603
4130	4822 051 30008	0R Jumper 0603
4131	4822 051 30008	0R Jumper 0603
4132	4822 051 30008	0R Jumper 0603
4133	4822 051 30008	0R Jumper 0603
4134	4822 051 30008	0R Jumper 0603
4135	4822 051 30008	0R Jumper 0603
4136	4822 051 30008	0R Jumper 0603
4137	4822 051 30008	0R Jumper 0603
4138	4822 051 30008	0R Jumper 0603
4139	4822 051 30008	0R Jumper 0603
4140	4822 051 30008	0R Jumper 0603
4141	4822 051 30008	0R Jumper 0603
4142	4822 051 30008	0R Jumper 0603
4143	4822 051 30008	0R Jumper 0603
4144	4822 051 30008	0R Jumper 0603
4145	4822 051 30008	0R Jumper 0603
4146	4822 051 30008	0R Jumper 0603
4147	4822 051 30008	0R Jumper 0603
4148	4822 051 30008	0R Jumper 0603
4149	4822 051 30008	0R Jumper 0603
4150	4822 051 30008	0R Jumper 0603
4151	4822 051 30008	0R Jumper 0603
4152	4822 051 30008	0R Jumper 0603
4153	4822 051 30008	0R Jumper 0603
4158	4822 051 30008	0R Jumper 0603
4160	4822 051 30008	0R Jumper 0603
4161	4822 051 30008	0R Jumper 0603
4162	4822 051 30008	0R Jumper 0603
4163	4822 051 30008	0R Jumper 0603
4164	4822 051 30008	0R Jumper 0603
4165	4822 051 30008	0R Jumper 0603
4166	4822 051 30008	0R Jumper 0603
4167	4822 051 30008	0R Jumper 0603
4168	4822 051 30008	0R Jumper 0603

COILS & FILTERS

5100	4822 156 21729	FXDIND 0805 100MHz 1k
5101	4822 242 11033	RES XTL 4,332MHz /22
5102	4822 157 10586	Coil 2,2uH 10%
5103	4822 157 10586	Coil 2,2uH 10%
5105	4822 157 62552	Coil 2,2uH 5%
5106	4822 242 70938	RES XTL 32,768kHz
5107	2422 540 98526	RES CER 10MHz
5108	*4822 157 11828*	*Coil 22uH 20%*
5109	4822 157 11828	Coil 22uH 20%
5110	4822 157 11828	Coil 22uH 20%

DIODES

6100	5322 130 30691	BAW56
6101	5322 130 30691	BAW56
6102	5322 130 30691	BAW56
6103	5322 130 30691	BAW56
6104	5322 130 30691	BAW56
6105	5322 130 30691	BAW56
6106	5322 130 30691	BAW56
6107	5322 130 30691	BAW56
6108	5322 130 30691	BAW56
6109	5322 130 30691	BAW56
6110	5322 130 30691	BAW56
6111	5322 130 30691	BAW56
6112	5322 130 30691	BAW56
6113	5322 130 30691	BAW56
6114	5322 130 30691	BAW56
6115	5322 130 30691	BAW56
6116	5322 130 30691	BAW56
6117	5322 130 30691	BAW56
6118	5322 130 30691	BAW56
6119	5322 130 30691	BAW56
6120	5322 130 30691	BAW56
6121	5322 130 30691	BAW56
6122	5322 130 30691	BAW56
6123	5322 130 30691	BAW56
6124	4822 130 30621	1N4148
6127	4822 130 34173	BZX79-B5V6
6128	4822 130 30621	1N4148
6129	4822 130 31878	1N4003G
6131	4822 130 31878	1N4003G
6132	4822 130 30621	1N4148

TRANSISTORS & INTEGRATED CIRCUITS

7100	4822 130 60511	BC847B
7101	4822 130 60511	BC847B
7102	4822 130 60511	BC847B
7103	9352 686 05118	SAA6581T /22
7104	9322 168 17668	M66005-0001FP
7105	4822 130 60511	BC847B
7106	3139 110 53200	M30625MG - 'MC90S53201'
7107	4822 130 60511	BC847B
7108	4822 130 60511	BC847B
7109	9322 145 26668	M24C02-WMN6
7110	4822 130 60511	BC847B
7111	4822 130 60511	BC847B
7112	4822 130 60511	BC847B

Note : Only the parts mentioned in this list are normal service spare parts.